From B.83.

J. W. Fleming F.R.C.S

THE Hospital-Surgeon:

Surgeon 4th Regiment

OR

A New, Gentle and Easy Way to cure speedily all Sorts of WOUNDS and other DISEASES belonging to SURGERY.

Aldershot

ALSO

A Discourse on Discovered BONES,

AND

May 1864

A Way to Dress, after Trepanning, with a *New Instrument* invented by the Author.

In Three PARTS.

I. The Advantages of this Way, and Mischiefs of a contrary Practice, proposed and confirmed by *Reason* and *Authority*.

II. Observations on WOUNDS of all Kinds, and in every Part of the Body; quickly cured by this Method. With Practical Reflections.

III. An Idea of the Author's New Practice in WOUNDS and other Cases, and his Easy and Effectual Remedies; with some OBSERVATIONS and REMARKS.

By Mr. *BELLOSTE*, Surgeon-Major to the Hospitals of the *French* King's Army in *Italy*.

The FOURTH EDITION, Corrected.

To which is added,

A TREATISE of BANDAGES, By *L. VERDUC*.

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THE
Tranſlator's PREFACE.

WE *could, poſſibly, have found out a Patron, had it been thought neceſſary, under the Protection of whoſe Name this* Stranger *might have come abroad into our* Engliſh World; *but as we look upon Dedications to be, for the moſt part, empty Formalities, as little minded by every one elſe, as what is ſaid in them is believed by the Writer, ſo we doubt not but this Book will every where meet with a becoming Reception, ſeeing it is ſent out on ſuch a friendly Errand, as to heal our* Sores, *and pour* Oil *and* Wine *into our* Wounds.

Surgery, *in conſideration of the Antiquity, the Uſefulneſs, the Neceſſity, and Excellency thereof, has ever been in the higheſt Eſteem, among all thoſe other Arts that were invented for the Service of Mankind. For the Improvement of this Noble Profeſſion, the* Author *of the enſuing* Treatiſe *has been at no ſmall Pains, having theſe twenty eight Years laboured therein, in ſome of the moſt celebrated Countries of the World, with an unwearied Diligence, and aſſiduous Application; the Fruits of whoſe Care and Fatigues the* courteous Reader *is here preſented with.*

Several of the Learned and Ingenious, not only of this, but alſo of ſome former Ages, have been very ſenſible, that this Art was very far from having attained to that Perfection whereof it is

capable; yea, that Abuſes *had ſlipt into Practice which were unknown to thoſe renowned Perſons, who at firſt were famous in this Faculty.* 'Twas *this Conſideration produced that learned and elaborate Treatiſe of* Cæſar Magatus, *Doctor of* Phyſick, *and Profeſſor thereof in the Univerſity of* Ferrara, *entitled*, De rara Vulnerum Tractatione, & Turundarum Abuſu. *To the ſame alſo we owe many other Chirurgical Compoſures, that from time to time have appeared in the World; ſome finding fault with one thing, and ſome with another, in the ordinary Way; yea, ſome have gone ſo far, as univerſally to reject it.*

It is not fitting, and would be extreamly unjuſt, to ſay any thing in diſparagement of the Works of ſuch as have endeavoured to oblige the Publick by their Labours; only this, we think, may be ſaid without Offence to any, That the Book of Cæſar Magatus *is written in* Latin, *rare to be found, and very long, and conſequently of no uſe to the* Engliſh *Reader: And as for others, they have either ſuperficially only, and tranſiently complained of the Imperfection of their Art, or then having ſignified to us in general the Defects of the* common Medicines *and* Method, *don't enter into a Detail of the Reaſons that make them miſcarry in particular Caſes, or make known unto us either the Name, Nature or Compoſition of theſe other Remedies which we are to uſe in the place of the former.*

The following Treatiſe, *which was altogether deſigned for the Reformation and Improvement of*

Surgery,

Surgery, *is without any of these Inconveniences. Herein the Author has discovered to us the Disadvantages of the usual* Remedies *and* Method, *in the differing Cases that occur, by particular Reasons, drawn from the Nature and Essence of the Things whereof he discourses. He not only describes to the Life the* Way *he would have us to take, but also, as to* Wounds *and some other Cases, points it out to us cloathed with all the most minute and requisite Circumstances, in particular Instances of* Cures *of all Sorts, done on all Parts of the Body. He gives us an Account of the Names, Natures, and Compositions of the* simple *and* easy Remedies *he uses, and which he has found attended with constant* Success, *not confining himself, or others, to one or two only, but exhibiting as was convenient a competent Variety. When he blames the* ordinary Practice, *and substitutes a better in the place of it, he accompanies his invincible Reasons with several Authorities of the most considerable Authors. Moreover, he has taught us to prevent the* Exfoliation of Bones; *and has given us a new Way of Dressing, after performing the Operation of the* Trepan, *with an Instrument of his own inventing.*

He seems to have hit upon the right Way of carrying the Knowledge of the Art *he professes to the farthest extent it can go; which is, by giving an exact History of what he has learnt therein by Experience, without vouching upon the Credit of others, whether Ancients or Moderns, what himself has not proved by a sufficient num-*

ber of Trials. Had this Course been hitherto taken in all the Arts *and* Sciences, *they had not remained to this Day of the dwarfish Stature we find them; neither had the World groaned under the bulky Lumber of an infinite Number of useless Books, which, for the most part, are but imperfect and mangled Transcriptions from the Works of others. Had* Physicians *done so, their* Art *had not been still termed* conjectural; *nor had the ill Success and jarring Opinions of, by far, the greatest Number of those who bear that honourable Name, exposed it to Contempt, and rendered it so obnoxious to be slighted, even by the Vulgar.*

But to return to our Author. *All we will further say of him, is, That he is an unfeigned Lover of Mankind, conscientious, sincere and communicative of his Knowledge without Reserve; and all this accompanied with an unusual* Modesty: *The Truth of which desirable Character his Book will abundantly justify.*

We will no longer detain the Reader in the Entry; only 'tis convenient he should know, that this Treatise, in the Original, is printed with the Approbations of some of the most eminent Physicians *and* Surgeons *in* France, *which are omitted in this* English *Impression, that was designedly brought into this small Bulk for the greater Conveniency of the Reader; of whom all we have to demand in behalf thereof, is, that he would* read, try *and* judge.

THE

THE PREFACE.

I AM ſufficiently convinced of the Truth of what is delivered by *Hippocrates*, in his *Aphoriſms*, that *Life is ſhort*, and *Art is long*. And indeed it appears extremely difficult, for one Man duly to acquit himſelf in the Practice of *All* the Parts of *Surgery*; the Capacity of the *Mind* ſeems too limited to be able entirely to graſp ſo extenſive an *Art*.

Though I have, for theſe eight and twenty Years paſt, practiſed *Surgery* under different *Climates*, and in divers *Hoſpitals* of the *Army*, yet I am ſo far from thinking to have attained to the Knowledge neceſſary in this Art, that I own myſelf ſcarce to have had Time to improve, and make ſome Remarks on the Curing of Wounds, to which chiefly I applied myſelf.

However, having had many Opportunities of diſcovering the Miſchiefs occaſioned by the Uſe of *Tents*, and by the *long* and *painful Manner of dreſſing the Wounded*, and often *uncovering their Wounds*; I was moved to Compaſſion by their Sufferings, and thought myſelf obliged in Conſcience to give my Advice herein. Beſides, ſeeing all Men are allowed the Liberty to ſpeak their Mind, with reference to the *Arts* they profeſs, I ſee not why I ſhould be denied the Privilege others aſſume to themſelves, poſſibly on much ſlighter Grounds.

'Tis not to be queſtioned, but among the great Number of *Surgeons*, wherewith *France* abounds, ſome will applaud the Excellency of my *Method*; but I am apt to think it will not pleaſe all. I hardly ever knew any that practiſed *Surgery* as I do, and there are few of all the celebrated *Authors* we have, that deliver any ſuch *Doctrine*; which, being contrary to the Practice of many *Surgeons*, will not, from the moſt part, meet with the Reception it merits.

'Tis a noble thing, ſaid a *wiſe Philoſopher*, to be evil ſpoken of for doing well: There is no Cauſe then, why any ſhould be aſhamed to communicate to the *Publick* what he has learned, when the *World* may reap any Advantage thereby. Nothing is ſo inconſiſtent with *Chriſtian Charity*, and that *Love* we owe to our *Neighbour*, as to refuſe to let him light his Taper at ours. *Knowledge*, like *Light*, *may be imparted and not leſſened.*

It is not my Deſign, by this *Method*, that poſſibly will appear to be new, to deſtroy the *Foundations*, and *principal Rules* left us by the *Ancients*, concerning the *Curing* of *Wounds*: I am willing only to make known my *Obſervations* on this Subject, and to point out what I've perceived to be pernicious in the ordinary *Practice*; withal to ſhew what is certain and uſeful in the *Method* I myſelf have followed for ſeveral Years; which, I hope, will be ſo much the more uſeful and reaſonable, as it is founded on the Principles of the *Circulation*.

I know

I know it is a pretty bold Attempt, to go about to ſuppreſs *Tents*, which have been uſed for many Ages; and I am not ignorant, that *Cuſtom*, on many Occaſions, has the Force of a *Law*. But notwithſtanding all this, I deſign to maintain the Privileges of *Nature*, and to ſhew, beyond Contradiction, that *Reaſon* and *Experience* are on my Side; though at the ſame time, I run the Hazard of being univerſally cenſured for the *Newneſs* of my *Method*.

I don't altogether condemn Thoſe, who were the firſt Inventors of *Tents*, *Dilaters*, and *Setons*: They have had their *Reaſons* for uſing them, as I have *Mine* for laying them aſide. Many things have formerly been imployed in *Phyſick* and *Surgery*, which now are no more in uſe. The *received Rules*, the *Order of Curing*, and alſo the *Application of Remedies*, have been changed from time to time: That which is *new* at this time, will one Day be *ancient*, as what to Day is *ancient* was once *new*.

'Tis true, the *Ancients* did lay the *Foundations* of *Surgery*; they have ſaid many things, but not all; neither was their *Knowledge* commenſurate to the *Subject*. They had the Honour of *Inventing*, but have left that of *bringing to Perfection to Poſterity*. However, it is not to be doubted, but that they took all requiſite Care to avoid being deceived, and to inform themſelves of the *Truth*; but if they had done All, Nothing had been left us to do.

Add to this, that if that *Prepoſſeſſion* in Favour of the *Ancients*, and the *blind Submiſſion* to their *Dictates*, had not been laid aſide, we had not ſeen the great Number of skilful *Phyſicians* and *Surgeons* which *this Age* hath produced; who, after having ſhaken off the tyrannical *Yoke* of *Antiquity*, found out things no leſs neceſſary than curious, that otherwiſe would have remained till now in Obſcurity, and had poſſibly been unknown to *Poſterity*.

Wherefore, it is not impoſſible, that in the active Part of *Phyſick* alſo, which is *Surgery*, frequent *Experience*, and continual *Diligence*, may have diſcovered *Abuſes*, that had crept into *Practice*, and were authoriſed by *Cuſtom*.

It can't be denied, that what belongs to the *Fabrick* and *Conſtitution* of the *Body* of Man always was, but yet it has not ever been equally known. The *new Diſcoveries* have made a conſiderable Change in the *Knowledge*, *Judgment*, and *Cure* of *inward Diſtempers*; and I ſee no Reaſon why there ought not alſo to be ſome Alterations in the Cure of *outward Diſeaſes*, and eſpecially thoſe of Wounds, which depend on the ſame *Principles*, and have the Advantage of the ſame *new Inventions*.

I ſuppoſe it will not be thought ſtrange, if after I have laboured for the Space of fifteen or ſixteen Years in *Hoſpitals* of the *Army*, I have made ſome *Diſcoveries* in the *Curing of Wounds*: For *Uſe* we know compleats a *Workman*. I have formerly ſeen the moſt Part of

France,

France, I have travelled over a Part of *Germany*, and all *Italy*, but have hardly found any Place where *Tents* were not in Uſe: Several there are who find Fault with them, but few will give themſelves the Trouble to lay them aſide. Some before me have written againſt them; but, I believe, I have been the firſt myſelf who had the Boldneſs entirely to ſuppreſs them in Practice, except only in caſe of exceſſive *Bleeding*, and in ſome *firſt Dreſſings*.

Hippocrates, *Galen*, *Celſus*, *Fabricius ab Aquapendente*, and many others cited in this Treatiſe, have been very near of my *Opinion*; and I have quoted ſome Paſſages of theſe famous Authors, that countenance my *Method*. I have inſtanced in ſome Places, out of *Ambroſius Parens*, as being a well known *Author*, and celebrated for the Cure of *Wounds*; but it appears, by the Remarks I have made, that he is inconſiſtent with himſelf in many Places of his Works; which can't chuſe but perplex the Mind of the young *Surgeon*.

Jacobus Marcus in his Preface to the *Summary of Bandages*, quotes *Septalius*, a famous Phyſician of *Milan*, and *Cæſar Magatus*, a renowned Profeſſor in the Univerſity of *Ferrara*, who, as he ſays, condemned the *Uſe* of *Tents*, and the two *frequent Dreſſing* of *Wounds*; and adds, that to this *Method* they had ſuited their Practice in theſe two *Cities* for a long while.

I know 'tis not length of *Time* that can give a *Value* to *Things*; it is only their own *Excellency*;

lency; and every thing muſt once have a *Beginning*. I hope therefore, if my *Reaſons* are approved, and ſome Credit given to my *Experiments*, none will judge it neceſſary to wait till an *Age* is expired before they will liſt themſelves on my Side. I know not whether my *Reaſonings* will be of Force enough to perſuade, but the infallible Proofs I have given of the Goodneſs of my *Method*, in the *great Number of Cures* I have wrought thereby, will, I hope, ſuffice to convince the *Publick*.

I grant, it is difficult at firſt to come over to the Opinion of another, when it is contrary to our own; but when the Life of Man is concerned, we ought not to delay one Minute to free ourſelves from Error, and to put off thoſe Prejudices that often hinder us thoroughly to penetrate into the *Truth* of things. The *Opinions* we receive in our younger Days, and the moſt Part of the *Maxims* we take upon truſt from the *Ancients*, are ordinarily the Cauſe of the *falſe Steps* we make in the chief Concerns of our Calling. The Life of the *Wounded* is indeed in the Hands of the *Surgeon*, who has him under his Care; wherefore he ought to uſe all Diligence, not only to attain a competent Meaſure of *Skill*, but alſo to find out a *ſure* and *ſpeedy Way* of curing *Wounds*. It will be objected to me, That a great Number of *wounded Perſons* have been, and are every Day cured with the Uſe of *Tents*, and alſo by following the *ancient Method* in all its Circum-

Circumſtances. I anſwer, 'tis true: And if all thoſe who are dreſt after this manner were in danger of being loſt, it would be downright *Malice* and *Cruelty* to uſe it; neither had my Endeavours been at this time needful to ſuppreſs it, ſince it would have been rejected long e'er now: But this I affirm, after I have made Trial of both the *one* and the *other Method*, and have carefully conſidered the Difference between them, that thoſe who are cured by that of the *Ancients* have need of a healthful Conſtitution; beſides, it is never without Danger, much Pain, and requires a great deal of time; all which Inconveniences are avoided by embracing that which I propoſe.

In this *Hoſpital* we have by this *Method* cured *Wounds* of divers Sorts, having had *Wounds* of all *Parts* under our Care: Wherefore this *happy Succeſs* can't in *Reaſon* be aſcribed to the *Temper* of the *Air*, which in ſome Places is favourable to certain *Parts* of the *Body*, as hath been obſerved by *Guy de Chauliat*, who ſpeaking of *Wounds* in the *Head*, ſays, that they are more eaſily cured at *Avignon* than at *Paris*; and that thoſe of the *Legs* are cured ſooner at *Paris* than at *Avignon*. The *Air*, I confeſs, where I am, becauſe of the Situation of the Place, is not ſo repleniſhed with groſs Parts as in plain and low Grounds, but ſtill 'tis hurtful to *Wounds*, both by reaſon of the *Nitre* wherewith it is ſtored, and becauſe of its Activity and Penetration: But I have never yet been able to remark,

mark, that it was either more beneficial or hurtful to one Part than to another; and I have always uſed all poſſible Precaution to hinder its Acceſs to all *Wounds* whatſoever; as will appear by the Sequel.

I ſhall not in this *Treatiſe* diſcourſe of the *Nature* and *Differences* of *Diſeaſes* that belong to *Surgery*, this is already ſufficiently done to my hand by others; and the learned M. *Verduc*, Doctor of *Phyſick*, hath lately obliged the Publick with a complete *Piece of Surgery*. I will therefore concern myſelf only with my own *Practice*; and if any thing elſe chance to fall from my Pen, it will be only what I *thought* neceſſary for *Underſtanding my Subject*.

Though in many Places of this *Book* I adviſe the Uſe of *general Remedies*, and a ſuitable Courſe of *Diet*, among the *Diverſions* neceſſary in the curing of *Wounds*, yet I don't pretend to aſſume to myſelf what belongs to *Phyſicians*, according to whoſe Directions they ought to be uſed; but I wrote in an *Hoſpital*, where the whole ordering of the *Wounded* was altogether committed to me. It ſhall ever be a *Law* to me, eſpecially when the Occaſion will allow, to keep myſelf within the *Bounds* of my *Profeſſion*. That Man who would acquit himſelf in his *Employment* as becomes him, will find enough to do, though he keep himſelf to what properly belongs to *Surgery*: And thoſe who pretend to know all things, moſt commonly know nothing at all. But

after all, I judge it highly advantageous for a *Surgeon* to know, on certain *Occaſions*, how to make a ſeaſonable uſe of general Remedies, as well as of Topicks, vulnerary Drinks, *&c.* For *opening* of a *Vein*, a *Potion*, or a *Clyſter*, when ſeaſonably adminiſtered, may ſave the *Life* of *a wounded Perſon*, or at leaſt prevent many *Accidents*.

I have divided this little *Treatiſe* into three *Parts*: In the firſt, I treat of *Tents*, and the Miſchiefs that always accompany the Uſe of 'em. After I have made it appear, that the *Air* is pernicious to *Wounds*, I add a Diſſertation on *uncover'd Bones*: And then I deſcribe by way of dreſſing, after performing the *Operation* of the *Trepan*, with a *new Inſtrument* of my own Invention.

The ſecond Part contains a *Collection* of ſome *Cures* that I have done, according to my Method, with a *Reflection* after each; which I juſtify by the *Authority* of ſeveral *Citations*. There would be reaſon to think that I had accommodated *Nature* to my own *Sentiments*, and the *Succeſs* of my *Practice* might be called in queſtion, if I had not related many very important Experiences, and ſuch as were publickly performed. For, without doubt, the eſtabliſhing of a new *Method*, as I have already ſaid, is a pretty bold Attempt, eſpecially in a time when *France* ſeems to have advanced *Surgery* to the higheſt Pitch of *Splendor*, but particularly *Paris*, to which I owe my *Birth* and

and *Education*: Knowing therefore that *Experience* is much more convincing than *Reaſon*, I have quoted ſeveral *Caſes*, and given a brief *Account* of ſeveral Cures, in a *Manner* as *natural* as poſſible.

The third Part will be no leſs uſeful to the *young Surgeon* than the other two; 'tis a general Idea of my *Practice*, with ſome *Obſervations*, and a Deſcription of the ſimple *Remedies* I uſe in the Cure of *Wounds* and *Diſeaſes* belonging to the Province of *Surgery*: Their *Vertue* is ſufficiently atteſted by the advantageous *Effects* which they produce; and the greater number of Patients cured by their Means, ought to gain them ſome *Repute*.

I have done what I could to give this Book a plain and eaſy *Stile*: If the Language is not fluent, nor the Expreſſions inviting, and agreeably order'd, it ought not to be ſurprizing: *Simplicity* and *Plainneſs* beſt becomes the *Truth*. A Book written in an *Hoſpital*, in the middle of the *Alps*, without any *Aſſiſtance* or *Advice*, and which is founded only upon *Practice*, neither can, nor ought to be attended with vain Embelliſhments of *Eloquence*. In a Word, *I expect to perſuade not ſo much by what I can ſay, as by what I have done.* I hope the Reader will take in good Part this *Eſſay*, and will not condemn a *Deſign*, the only *Aim* of which is, *the Glory of* GOD, *the Comfort of the* Afflicted, *and the Perfection of* Surgery.

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THE

THE

Hoſpital-Surgeon:

OR,

A New, Gentle and Eaſy Way, to cure ſpeedily all Sorts of WOUNDS.

PART I.

Plainly ſhewing, by Reaſon *and* Authority, *the Advantages of this Way, and Miſchiefs of a contrary Practice: With a* Diſcourſe *upon* Diſcovered BONES; *and a Way to Dreſs, with a* New Inſtrument *of the Author's Invention, after the Uſe of the* Trepan.

CHAP. I.

Of the Four Ends propoſed in the uſing of Tents.

THE Uſe of *Tents* in Wounds being reputed of ſo long ſtanding in Surgery, and but too much approv'd of, by the Univerſal Practice, at this Day; it will be neceſſary for us, before we deliver our own Method, to give our

Thoughts thereon; which alſo we will confirm by Reaſon and Authority.

Fabricius ab Aquapendente, in his 8th Chapter *Of Wounds*, reckons up only three Uſes of *Tents*; but many after him make mention of four. One is to keep open the Orifice of the Wounds: Another to carry the requir'd Medicines to their Bottom: A third, to further the coming away of extraneous Bodies: And a fourth is, to drink in as it were, and to retain the Filth and Excrements therein generated.

Our Deſign is at preſent to conſider, whether theſe Ends, ſo far as they are expedient, may not be obtain'd without the Aſſiſtance of *Tents*: For I would not be thought, without Reaſon, to make any Change of the Order receiv'd in managing of *Wounds*; nor raſhly to lay aſide any thing that might conduce to the Relief of the Wounded, or facilitate and ſhorten the Cure.

CHAP. II.

Of the Firſt End of Tents.

IT is unqueſtionably certain, that *Nature*'s Endeavours are ever bent towards the ſupplying of what has been taken away by violent means from our Bodies, and uniting the Diviſions made therein: We ought not therefore to keep

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keep open the *Orifice* of a Wound, but if needful, it may be widen'd at the firſt Dreſſing; and thereby what is deſign'd in the firſt Uſe will be ſufficiently attain'd. However, I don't altogether diſapprove of the Uſe of *Dilaters*, and ſometimes of *Tents*, when they are required to contain and ſupport Aſtringents, to ſtop the Bleeding, or to hinder the Reunion of freſh Inciſions, that ſometimes are neceſſary in the firſt dreſſing of *Gunſhot Wounds*; eſpecially when there is any ſuſpicion that *extraneous Bodies* are lodg'd in the Wound, or ſome Splinter of a Bone that Nature is not able to reunite. But *Tents* are not only uſeleſs, but extreamly hurtful, particularly in *Gunſhot Wounds*, that of themſelves are oftentimes ſufficiently enlarg'd by the coming away of the bruis'd Fleſh, commonly call'd the *Eſchar*; before which we need not fear the cloſing up of the Wound.

It was never known that a Wound did fill up, while any *foreign Body* remain'd within it. Now the *Eſchar* is an extraneous Body, in regard of thoſe Parts to which it immediately adheres, and muſt therefore of neceſſity be ſeparated from them: Moreover, *Nature* can't effect a Re-union of the Fleſh till firſt ſhe have free'd herſelf of what keeps aſunder the Parts to be join'd.

Fabricius ab Aquapendente is of the ſame Opinion, *Part* I. *Book* 4. *Chap.* 9. where he

ſays, that *Nature never cures a* Wound, *ſo long as any thing is in it that offends her.*

I do believe there is no-body but will grant that the Separation of the *Eſchar* is a Work of Nature, that is moſt ſpeedily perform'd where the natural Heat is moſt vigorous: Now, ſeeing new Fleſh is bred eaſieſt at the Bottom of the Wound, 'tis there alſo where it firſt begins to fill up; and therefore the Orifice is laſt of all freed from the *Eſchar*, and ſupply'd with new Fleſh: for which Cauſe we have no Reaſon to fear its ſudden cloſing; neither does there appear any neceſſity of uſing *Tents*, to avoid that Inconveniency.

As for Wounds made by ſharp Inſtruments, they have no need of *Tents*, ſeeing they don't want to be dilated, but only to be clos'd up: Now what thwarts Nature's Intention not only may, but ought to be laid aſide.

Finally, *Contuſed Wounds* can't be united, till what is bruiſed is remov'd either by the force of the natural Heat, or the Application of diſſolving Medicines, or by Suppuration: and conſequently it appears, that in this Caſe alſo, as well as the others, *Tents* may be forborne, and ſo the firſt *End* propos'd in uſing them is not to be allow'd.

CHAP.

CHAP. III.

Of the Second End of Tents.

THERE will be no need of a great many Reaſons to demonſtrate, that it is an eaſy matter to make the *Remedies* paſs to the *Bottom* of a *Wound*, without the Aſſiſtance of *Tents*; for to this Purpoſe nothing more is requir'd, than to give a pretty ſoft and thin Conſiſtence to thoſe *Ointments*, *Balſams*, and other ſuch like Remedies, as are commonly us'd in curing of *Wounds*.

When a ſimple Diviſion is made in a healthful and well-temper'd Body, Nature ſtands not in need of any thing elſe, but the *natural Balſam* of the Parts, or the *nutritious Juice*, in order to procure a Re-union, eſpecially if it is in fleſhy Parts, in which Caſe the *Tents* and *Ointments* do only irritate the *Parts*, cauſe Fluxions of *Humours*, putrify the *Fleſh*, alter the *nutritious Juice*, and ſo occaſion long and very great Suppurations, which rather hinder than promote the Cure.

MEDICAL BOOK CLUB

CHAP. IV.

Of the Third End of Tents.

THAT the Diſcharge of the *extraneous Bodies* is at all furthered by *Tents*, is a thing not to be imagined: Yea, on the contrary, we have more Reaſon to believe that they conduce very much to retain them. For ſuppoſing that any thing remains in a *Wound*, as a Bullet, Pieces of Bone, of Cloaths or Wad, *&c.* it is almoſt impoſſible ever to draw it forth at the ſame Place by which it enter'd, unleſs it be at the firſt or ſecond Dreſſing: And this happens very ſeldom, tho' never without great Pain, and much Time or Trouble.

There is no Probability that a Body ſo heavy as *Lead* can remain for any conſiderable time in one Place, unleſs it ſtick in ſome Bone or Joynt. The Fleſh has not ſolidity ſufficient to detain the *Bullet*, but gradually yields to its deſcending Weight: and ſuppoſing it did not ſtir of it ſelf, yet ſo far wou'd a *Tent* be from furthering its coming out, that it would rather fix it faſter, and puſh it deeper into the *Wound:* Now the *Matter* ever follows the *Bullet*, and makes to it ſelf one or more Cavities; it gathers together, encreaſes, ferments, and commonly brings on a Fever; the Part is weaken'd, the Body waſted,

waſted; and, in fine, the wounded Perſon frequently is brought to an untimely End. The like Accidents may alſo be produc'd by the Splinter of a Bone, or ſome ſuch other thing, after the ſame manner. Hence it is, that on the leaſt Suſpicion, whether from the Complaint of the Wounded, or any other Appearance of a foreign Body remaining in the *Wound*, Search is made thereinto with Inſtruments, and with the Fingers, but for the moſt part to no purpoſe, as I have often ſeen, and all this to ſatisfy themſelves, and to ſhew to the By-ſtanders and to the Patient, that no Diligence has been ſpar'd to further the Cure. This Method is no leſs hurtful than cruel, and by exaſperating the Parts, cauſes Fluxions, and brings on Putrefaction, yea, oftentimes incurable Fiſtula's. But when all theſe aforeſaid Means fall ſhort of Succeſs, then a lower Part is ſought out, therein to make a counter-opening, which ſometimes, when the Patient is of a ſtrong Conſtitution, effects the Cure.

Pieces of Garments, of Wad, of Linen, *&c.* are often carried by the *Bullet* into the *Wound*, and there remain after it is drawn out, being deeper lodg'd: Theſe things are but too capable of occaſioning troubleſome Accidents; and *Tents* conduce not a little to keep them there, by obſtructing the Paſſage whereby they might be expell'd.

It is certain, that a *Tent* always ſwells in the Woend, and filling up the *Orifice*, keeps in the *Matter*, which not being longer to be contain'd within the narrow Bounds of the Wounds, ſpreads it ſelf into the neighbouring Parts, glides between the *Muſcles*, and carries along with it the *extraneous Bodies* which are there corrupted and putrify'd, and infecting the Wound, occaſion Mortifications, or Abſceſſes very hard to be cur'd.

I ſay then, to conclude this Chapter, that it is altogether in vain to uſe *Tents* with a Deſign thereby to facilitate the Diſcharge of *foreign Bodies*; and that they rather conduce to keep them in, than aſſiſt in furthering their Paſſage. But if by Chance it ſhould fall out, as ſometimes it does, that the Wound cloſes up when there is ſome *extraneous Body* within, it will occaſion an Abſceſs, either under the ancient *Eſchar*, or ſomewhere elſe, more convenient for *Nature*, by the opening of which only, whatever is hurtful and unprofitable will be diſcharg'd.

As for leaden *Bullets* that have not been drawn out at the firſt Dreſſing, their remaining in the Parts can do no great hurt, becauſe they are friendly to Nature; and in proceſs of Time, by their own Weight, ſlip down between the Muſcles, and often appear

pear under the Skin, from whence they may be taken out, without either Trouble or Danger. The moſt Part of Surgeons are convinc'd of the Truth of what I ſay: Only this I muſt acknowledge, that we ought to endeavour to draw forth ſuch Bullets, as are either lodg'd in a Joynt, or in hazard of falling into ſome Cavity of the Body; as that of the Scull, of the *Thorax*, or of the lower Belly, where they might be irrecoverably loſt.

CHAP. V.

Of the Fourth End of Tents.

AS for the fourth pretended Uſe of *Tents*, I grant that they are always ſoak'd with the Moiſture of the Wound; but as they retain that Humidity, not ſuffering it to paſs out, ſo they are thereby ſwell'd up, and enabled to intercept the Paſſage of all the other Matter that is generated: Now I would willingly hear a Reaſon for keeping in a Wound Excrements, which Nature is ſo ſolicitous to throw out; for being corrupted by their abode, they alter and deſtroy the Conſtitution of the Parts that contain 'em. Seeing then the longer the Matter is detain'd, the more it is deprav'd, I am

perſuaded 'tis much better to give it a free Paſſage, not interrupting its Courſe, than to ſhut it up with *Tents*, and force it to take other ways.

Having therefore demonſtrated, that the Ends that have been deſign'd by the Uſe of *Tents*, in ſo far as they are for the Advantage of the Wounded, may not only be attain'd without them, but are really hindred thereby, I will endeavour in the following Chapter to take the part of *oppreſſed Nature*, and to aſſert her Liberty by Reaſons founded on the Circulation of the *Blood*, and ſupported by the Authority of many Authors.

CHAP. VI.

Conſequences deduced from the preceding Chapters.

Nature hath been diverſly defined by Authors, *Julius Alexandrinus* calls it *The Author, the principal and efficient Cauſe of natural Beings.* In this Senſe it is regarded in *Phyſick* as the Cauſe of *Health*, and the *Phyſician* of Diſtempers; and is by *Van Helmont* conſider'd in three different States; to wit, either in its full Strength and Vigour,

gour, or as impair'd and weakened, or as altogether oppreſs'd and proſtrate.

Theſe things might be apply'd to our preſent Purpoſe; however, that I may give a more clear and intelligible *Idea* of *Nature*, which may better ſuit with outward Diſeaſes, I ſhall look upon her as the *chief Worker of whatſoever concerns our Health:* and I am perſuaded, ſeeing ſhe has fram'd every thing according to the Law of their being, ſhe will alſo maintain them in their neceſſary *Union*, unite them when divided, and in a Word, reſtore them to their firſt State, when any way fallen from it.

This *Union* is ſo neceſſary for maintaining *Health*, and preſerving *Life*, that all, or at leaſt the moſt part of *Diſeaſes*, proceed from a Defect therein: For things of a foreign Quality are one way or other mixed with the *Humours* of the Body, which diſordering and interrupting the *Union* of their Parts, change and deprave the good *Temperament* and Qualities of the *natural Balſam*, called *radical Moiſture*; and from hence come *Diſeaſes* and *Death.*

In outward Maladies alſo, and in Diviſions of the harder or ſofter Parts of the Body, manifeſt to the external Senſes, it is plain, that *Nature* ſuffers, and conſequently muſt ſtrive with all her Might to re-unite the divided Parts. The Surgeon, as her

faithful Miniſter in curing Wounds, ought to imploy his utmoſt Care to aſſiſt her, while ſhe labours to effect that ſo neceſſary *Union*. To this End he ſhould not only leave her at Liberty, putting no Hinderance in her way, but alſo free her from whatever may thwart her Deſign. Finally, he muſt aſſiſt and imitate her, mind her *Inclinations*, obſerve her *Proceedings*, and follow her as it were ſtep by ſtep, that he may be ever ready to lend her his requir'd Help.

The Art of Phyſick turns upon this Principle, that *Nature has the chief Hand in curing Diſeaſes*; 'tis with her the Phyſician ought to conſult, and without her Conſent as it were he ought never to do or undertake any thing: And, in a Word, he only is the ableſt *Phyſician*, who has moſt earneſtly apply'd himſelf to the ſtudy of *Nature*.

I acknowledge, there are many Caſes wherein *Nature* alone is not ſufficient, and in theſe ſhe muſt be help'd out by the Hand of *Art*: as in the drawing out of *extraneous Bodies* from Wounds, cutting off mortify'd Parts, opening Abſceſſes, reſtoring broken or disjoynted Bones, and other like Operations belonging to the Province of *Surgery*. But let a Surgeon be never ſo ſuperficially acquainted with Nature, he may eaſily perceive, that by *Tents* and *Dilaters* ſhe is oppreſs'd, depriv'd of Liberty of acting, and

and directly oppos'd in her Deſign, which is to re-unite the divided Parts.

Fabricius ab Aquapendente, whom I mention'd before, aſſerts, that *Nature never cures a Wound, ſo long as any thing is in it which ſhe can't retain:* For in this he is agreed with the moſt judicious, that 'tis Nature that works the Cure; and at the ſame time ſhews, that a *Tent* is ſuch an Enemy to her, as neither ought nor can be us'd but to her Hurt and Deſtruction. *Galen* alſo, in his third Book of Method, ſays, that 'tis not the Remedies, but Nature that cloſes up the Wounds.

Wherefore, Experience having convinced me of this Truth, I ſet my ſelf to conſider *Nature*'s Deſigns, her Inclinations, and the way ſhe takes to effect the Cure of Wounds; and have obſerv'd, that *Tents* do ever oppoſe, and prove a Hinderance to her. 'Tis every Day to be ſeen, that *Nature* can ſuffer nothing foreign to abide with her; ſhe endeavours with all her might to free herſelf from *Tents* and *Doſſils*, with which Wounds are ordinarily cram'd up: For though they did not occaſion Pain, as we may be well aſſured they do, yet being *extraneous Bodies*, Nature can't endure them without trouble; and let them be never ſo ſmall or ſoft, they muſt neceſſarily preſs always upon ſome *Veſſels*, of which the Body is nothing elſe but a Contexture.

Ac-

According to their Bigneſs and Hardneſs, *Tents* do more or leſs diſturb the Courſe and Order of the Circulation of the *Blood*, ſo far as the Wound reaches: They ſqueeze out the moſt ſubtil part of that, or other Liquors contain'd in the Veſſels they preſs upon, which by the Matter already in the Wound is converted into its own Nature, and becomes a Ferment; that being retain'd, grows hot and corrupt, and ſo alters the containing and neighbouring Parts, and oftentimes imparts its vicious Qualities to the Maſs of Blood, by Vapours ſent into the Veins; yea, the Matter itſelf is ſucked up by the Veins, their Orifices being dilated by its Fermentation, Moiſture, and Stay; and this circulating with the Blood, entirely corrupts it, and cauſes Fevers that end in Death, unleſs Nature, by ſome critical and healthful Motion, throw out the Corruption.

Ambroſius Pareus in his ninth Book, treating of Wounds, Chap. v. forbids the Uſe of *Tents* in few Words, being therein ſupported by the Authority of *Galen*, who in the fourth Chapter of his *Method*, affirms it to be neceſſary in all Wounds, whether ſimple or compound, that nothing be between their Lips that may hinder Re-union. The ſame *Pareus*, in his ninth Book, Chap. vii. recommends the Uſe of long and thick *Tents* in the Beginning, and afterwards adviſes to make them more

more thin and ſhort; but does not here forbid their Uſe. In the ſame Book, Chap. xv. he takes the Part of *Tents*, in oppoſition to a certain Phyſician, that had written againſt his *Method*.

Theſe differing and contradictory Opinions in one and the ſame Author, muſt of neceſſity throw the young Surgeon into perplexing Doubts, ſo that often he can't know what is beſt, or what way is moſt ſecure. 'Tis certain however, that the Miſchief of *Tents* was known to *Galen*, becauſe he forbids their Uſe; and alſo to that Phyſician who found Fault with the Practice of *Pareus*; his Name I know not, but by the Acknowledgment of the ſame Author, he altogether lays aſide the Uſe of *Tents*, and orders to dreſs a Wound but once in four Days. This Method therefore is not ſo new as at firſt I thought with myſelf, for I had form'd my Deſign before I was aware of what I have here quoted; and it was *Experience* only that opened my Eyes.

Galen juſtifies further my Opinion, in his third Book *of Method*, and ninth Chapter, when he ſays, that in every Wound there are two ſorts of Excrements, a groſs and a ſubtil, which, as he affirms, hinder the Generation of Fleſh. Now if this be ſo, it is very prepoſterous to keep them in the Wound with

with *Tents*. If it be ſaid, that the *Tents* may be made ſo little, as not altogether to fill up the *Orifice*, nor hinder the Paſſage of the *Matter*; I anſwer, that though they be made never ſo ſmall, yet will they fill up the Mouth of the Wound; becauſe they ever ſwell up to the bigneſs of the Space they are in: But ſuppoſing the moſt ſubtil Matter to eſcape, yet the more groſs and clammy is by them retained, and is enough to occaſion grievous Accidents. Now, if ſmall *Tents* prove ſuch a Hindrance to the curing of Wounds, what may be expected from thoſe that are long and hard, and paſs to the very Bottom? And yet theſe alſo are uſed by many Surgeons, who for want of applying themſelves to the Conſideration of *Nature*, and her Intentions in the curing of Wounds, continue to follow a Method that is both cruel and deſtructive.

Tents, *Dilaters*, and *Setons* always occaſion Diſorders in the Places where they are apply'd; if they touch the *Nerves*, they cauſe extremity of Pain, that is often the Original of many Evils, and follow'd by many grievous Accidents, ſuch as Convulſions, loſs of Senſe, *&c.* If they bear upon a *Tendon*, its Action is hurt, and Motion ceaſes: If they preſs the *Veſſels*, as they almoſt ever do, the Circulation of the Blood is diſturbed.

But ſuppoſe a *Tent* ſhould only preſs together the * fibrous *Papillæ* that compoſe the Skin, which are of a quick Senſe, being the Inſtrument of *Touching*; this alone were enough to diſturb the Order and Diſtribution of the Spirits, which now moving in a tumultuary way among theſe fibrous *Papillæ* of the Skin, contract them by the Irritation and Pricking which they cauſe. Now the Fibres being ſhortned, and the Skin contracted, the Veſſels muſt of neceſſity be doubled or ſqueezed together, and conſequently the Circulation diminiſhed, or entirely ſuppreſs'd. In theſe Caſes there is not ſo much Blood carried back by the Veins, as was brought by the Arteries: Now, if the Circulation is altogether ſtopt, a Mortification enſues; if conſiderably diminiſh'd, an Abſceſs; but if the Humours ouze into the Wound from the Capillary Veſſels, large and tedious Suppurations are occaſion'd.

* *Mamellons Fibreux.*

The Hardneſs and Swelling are cauſed by the Matter that is ſtopt and diffus'd about the Place; and therefore all the Accidents are more or leſs grievous, and vary according to the Force of the Compreſſion, the Quantity of diffuſed Matter, the good or bad Diſpoſition of the Blood, of the Humours, or of the Part affected, and the different Degrees of the natural Heat, which haſtens

or

or keeps back the Fermentation and Putrefaction.

From what hath been ſaid it appears, that the Blood and Humours are not carried or attracted (as ſome Authors love to ſpeak) to the afflicted Part more abundantly than at other times, although the Spirits run thither in much greater Plenty. On the contrary, it is evident enough that the Blood circulates leſs in the wounded, than in the ſound Parts, becauſe it moves with greateſt Eaſe in theſe latter: And it is a Law of Nature, that a Body in motion always moves towards thoſe Places where it finds leaſt Oppoſition.

The Truth of this is clearly demonſtrated by the Accidents, which ſome time ago follow'd on certain malignant Fevers, in Places not far diſtant from hence. They caus'd an Obſtruction, and Swelling in the lower Belly, ſo conſiderable, that the Circulation was ſtopt, and a *Gangrene* enſued: But on the contrary, the Blood was violently, and in too great Quantity, carried upwards; it could not be contained within the Veſſels, broke through all Obſtacles, and caus'd ſharp Pains, Abſceſſes, Deliriums, and Death.

Upon a ſerious View of the Accidents that moſt commonly attend Wounds, I believe that for the moſt Part they proceed from

from the Diſorder of the Circulation of the Blood, occaſion'd by broken Pieces of Bones, Bullets, or ſome other foreign thing remaining in the Wound. Though theſe things are not of ſuch a Figure as to cauſe an Irritation, nor can of themſelves produce any Putrefaction, yet they commonly bring on Abſceſſes. We ought not then to aſcribe theſe Accidents to *Pain*; for ſometimes they come without it; and this often is preſent where thoſe don't happen. But I am of Opinion, that theſe extraneous Bodies preſs the Veſſels that are diſpers'd, through the Place where they are, and ſtop the Blood, which ſlipping into the Pores and Spaces of the Fleſh, by its Stay and Fermentation, is there corrupted, and changed into the Matter of an Abſceſs.

'Tis true, leaden Bullets, or other things of a like Nature, have been long in the Body, and yet no Abſceſs hath followed; but this may be attributed to the largeneſs of the Place wherein they happen'd to be lodg'd, ſo as not to occaſion any Diſorder; or becauſe, ſliding between the Muſcles, they did not hinder the Courſe of the Humours. The other Accidents that ordinarily attend *Gunſhot Wounds*, are alſo occaſioned by the Defect of the Circulation; as I ſhall obſerve in the Sequel of this Diſcourſe, where it ſhall be made appear, that *Tents* and *Dilaters* us'd in

in this Sort of Wounds, hinder the fall of the Eſchar, the Diſſolution of what is bruiſed, and the paſſing out of whatever ought to be brought away.

This will, without Difficulty, be granted by thoſe who well underſtand the Courſe of the *Blood* and *Humours*, and the Union and Order of the Parts that compoſe the Body. All the Parts are ſo united one to another, that the leaſt Separation can't be made without Pain, Effuſion of ſome Humour, or ſome other Diſorder. Experience ſhews, that it is not only the Air that rots the Bones, but alſo the Nouriſhment of the nervous Parts, when it is alter'd by a malignant Acid, and generally any Matter that has Acidity enough to cauſe a Fermentation and Corruption in the Place of its abode, when kept in by Tents or other ſuch Obſtacles.

Though *Doleus*, in his Surgery, is not altogether againſt the uſing of *Tents*, yet he ſhews, that we ought to do it with great Caution: From whence it appears, he judg'd them dangerous.

Etmullerus is of the ſame mind, in his *Phyſical Surgery*, where he joins ſuch Accidents with the Uſe of *Tents*, as ought to affright thoſe who make uſe of them. He adviſes the uſing of *Pledgets*, and quite to lay aſide *Tents* in Wounds of the *Nerves* and *Tendons*, and in thoſe of the *Joints*. Hence it appears that

that this Author was no great Favourer of *Tents*; for which reaſon he orders the Uſe of the *vulnerary Balſam* in the Cure of Wounds; which promotes the Generation of Fleſh, and cauſes a ſpeedy Union; to both which the Uſe of *Tents* is directly contrary.

All the famous Phyſicians who have treated of Surgery, and the curing of Wounds, are well nigh of the ſame Opinion. I could reckon up a great Number, if I thought that theſe I have adduc'd were not enough. It appears, as I have ſaid in the Preface, that *Septalius* and *Magatus*, both renowned Phyſicians, that practis'd Surgery in *Italy*, follow'd this Method for the Space of forty Years, with very good Succeſs.

M. *Cauſape*, Doctor of Phyſick, in his Obſervations on the frequent Uſe of Bleeding, altogether diſcards the Uſe of *Tents*, without any Reſerve. He ſupports his Opinion with Reaſons, which *I* thought of before his Book came to my Hands: But we may be ſure that Author did not write on this Subject before he was fully convinc'd, by his own Experience, of what he advanc'd. It would be an unpardonable Raſhneſs for one to write and maintain that, of which he doubted the Truth, and to eſtabliſh a Method on falſe Principles.

I very well know that many will oppoſe what I advance on this Subject, which is the common Fate of all Opinions that appear new;

new; but of this Matter *Experience* only is the moſt competent Judge, whoſe Teſtimony ſhall be deduc'd at large, and with all Faithfulneſs, in the ſecond Part of this Work.

In this firſt Part I make account ſufficiently to explain the Reaſons that oblig'd me to lay aſide the Uſe of *Tents* and *Dilaters*: I can't approve their Proceeding who uſe them becauſe others have done ſo, or becauſe the Ancients have order'd it. The Glory or Blame of the *good* or *ill* Succeſs, ſay they, accrues not to us; we have Cuſtom and Antiquity for our Warrant. But *Arts* and *Sciences* ought never to be ſhut up within ſuch narrow and unequal Bounds; *Knowledge*, *Reaſon*, and *Experience* would be injur'd to the higheſt Degree, if we ſhould impoſe upon them ſuch ſevere Reſtrictions, and take from them that Liberty, which ſhould laſt equally with the World.

CHAP.

CHAP. VII.

Reaſons to demonſtrate the Miſchief of Tents.

MANY of the Ancients, and ſome of the modern Writers, have ſpoke of Tents, as things indifferent; ſuch Authors I mean as having written of Surgery and the Cure of Wounds, ſeem to have brought theſe things to ſome Perfection. They leave it to the Diſcretion of the Surgeon, either to uſe them or not, according as they judge convenient: They did not think this Matter of ſuch moment, as to require their Attention; they look'd on theſe Means with unconcern'd Eyes, referring themſelves therein to the Honeſty of thoſe who firſt wrote of them. 'Tis apparent they had not obſerv'd, as I have often done, the Miſchiefs occaſion'd by *Tents*, the Uſe of which deſtroys indifferently the Vulgar with Perſons of Merit, whoſe loſs in a State is always to be regretted.

We need not be ſurpriz'd at what we ſee happen every Day, in the Cure of all Sorts of Wounds; 'tis not at this time only that one thing has been taken for another. Our Knowledge is not ſo great as to reach to all neceſſary

neceſſary Truths; nor do we perfectly underſtand the Cauſes of all the Accidents and Diſorders that follow upon Wounds; all thoſe who have treated on this Subject have endeavour'd to explain them according to their Opinions, as I have done my beſt to accommodate them to mine: But Occaſions are now frequent enough, and therefore it will be eaſy for any one to inform himſelf of the Truth, and to diſtinguiſh who are in the right, and who not.

M. *de la Charriere*, in his *Book of Operations*, diſcourſing of Wounds, adviſes carefully to wipe away all the Matter of a Wound, and to fill up even the very leaſt Corner with Dilaters or Doſſils, to hinder its ſtaying, leſt it ſhould be ſuck'd up by the Veins, and carried by the Circulation to the Heart. The ſame Author adds, That the Air is a moſt powerful Enemy to Wounds: Nevertheleſs it is impoſſible to dry up the Matter with all that Exactneſs he requires, what Diligence ſoever be us'd, without taking up ſome Time, during which the Air will do inevitably more harm than the Matter which therein might have remain'd; which often is not endu'd with all theſe ill Qualities, one is apt to imagine; as ſhall be made to appear in the fourth Chapter of the laſt Part of this Treatiſe.

This

This Author acknowledges that in *Contuſions*, a little extravaſated Blood ſqueezes together the Veſſels, interrupts the Courſe of the Blood and Humours, and cauſes Fluxions and Inflammations. What then may be expected from a like Quantity of *Doſſils* heaped one upon another? They encreaſe the Diviſion made in the Body, and oppoſe the Deſign that one ought chiefly to have Regard to in curing Wounds, which is Re-union. To this may be added, that they are more hard, painful, and contrary to Nature, than a little Blood of which he ſpeaks.

As for what is alledged by him, that the Matter might otherwiſe be taken up by the Veins, it is not to be apprehended, unleſs it were of ſo great a Quantity as to ferment, or made ſo long a ſtay in the Part, as to open and dilate the Orifices of the Veſſels. This may indeed fall out in Wounds of the Breaſt, as will appear in the ſecond Part of this Book, and in thoſe of the *Thorax*, where the Capacity and Heat of the Part are ſufficient to produce that Effect. This alſo may happen in great Abſceſſes, whereof we will give ſome Examples at the End of this Work. Finally, this may arrive when the Mouth of a Wound is ſtopped up with *Tents* or *Dilaters*, which too often keep the Matter ſhut up from one Dreſſing to another: hence it encreaſes, ferments and ordinarily

acquires a vicious and malignant Quality, which may be communicated to the Heart, by means of the Circulation of the Blood.

Of all thoſe Miſchiefs, *Tents* and *Doſſils* may be accounted the chief Occaſion. Now to avoid all theſe Accidents, and the ſtaying of the Matter in the Wound, we need only leave open the Orifice, and put nothing into the Cavity which may increaſe the Separation of the Parts; to the end they may come together, when there is nothing to hinder their Re-union, nor any empty Space, where the Matter may make any conſiderable ſtay. Theſe I think are good Reaſons, and ſtrong enough to overthrow an Opinion that is contrary to my ten or twelve years *Experience*.

The ſame M. *de la Charriere*, a little further ſays, that the Orifice of a Wound muſt be dilated when it is ſo little that it will not ſuffer *Doſſils* to enter, that ſo it may be filled therewith: And I on the contrary widen it, that I may avoid the uſing of them, for Reaſons mentioned before. Moreover it is to be feared, that a *Dilater* may be loſt, and fixt in a deep *Wound*. Of this we have had ſufficient Proof in the Perſon of one of our *Generals*, and many others wounded in the Battel of *Marſeils*.

Wherefore if *Tents* may be laid aſide, as has been done in this Hoſpital, even in deep Wounds of the moſt fleſhy parts of the Body; much

much more ought they to be forborne in others.

The ſame *Author* before-mentioned rejects the uſe of *Tents*, excepting in deep Wounds of the Breaſt, and lower Belly: But it may be ſeen in the ſecond Part of this Treatiſe, where we diſcourſe of Wounds in the Breaſt, in what manner we have cured many ſuch of different Natures without the Aſſiſtance of *Tents*.

As for thoſe in the lower Belly, I know it may be ſaid to me, that if I have not uſed *Tents* to them, it is long of the difficulty of their Application, and ſtay in this Part, where, by reaſon of the continual motion, they can't be kept in, unleſs with a very ſtreight Bandage. But the matter is otherwiſe; for indeed I ſee not for what Reaſon *Tents* are required to this part any more than to others. Let us ſuppoſe now, that the expected Suppuration of the contained Parts that are wounded is already begun, 'tis impoſſible the Matter can come away while the Orifice is ſtopt up with a *Tent*, but it muſt fall down by its own weight into the lower part of that Cavity: Alſo what Matter or Blood may there be collected, can't be diſcharged by reaſon of the *Tent*, which is as a Dam to keep it in; eſpecially if we wait till the Suppuration of the Teguments, which is never great, be excited by Irritation or by *Tents*. Otherwiſe the Motion in Breathing, and the lifting up of the *Peritonæum* in Inſpiration, will drive out the Matter as it breeds, if a free paſſage be allowed it.

There is one Caſe wherein *Dilaters*, and ſometimes *Tents*, become in a manner neceſſary; and that is when a Wound is accompanied with a conſiderable Bleeding; then they may be uſed to carry Aſtringents to the Aperture of the Veſſels, and to ſupport and keep them on; chiefly in deep Wounds: For if at firſt we ſhould join the Lips of the Wound, and apply Aſtringents upon them, the outward Bleeding might be depreſt before that of the Veſſels were reſtrained; and ſo the Blood running between the Muſcles would there be corrupted, and would ſpoil the Parts wherein it is contained, and thoſe that border upon them, and might alſo occaſion Suffocation, and a Gangrene. This is what I ſaw, at *Turin*, befal the Baron *de la Serra*, a Gentleman of *Savoy*, who being wounded with a Sword near the right Arm-pit, had a branch of the *Vena Subclava* opened: He was dreſſed by a very expert Surgeon, who, whether by chance or otherwiſe, neglected to apply Aſtringents to the Aperture of the Veſſel, tho' the Bleeding was very great: The Wound was joined, and the Part loaded with Aſtringents, which were made faſt with Compreſſes and Bandages. In the mean time the Blood continued to run from the Vein, and to diffuſe itſelf between the Muſcles of the Breaſt. Two or three Days paſt before the firſt Dreſſings were taken off, and then the *Thorax* was found to be gangren'd.

The

The wounded Perſon died in a little time after.

The Cauſe of this Gangrene can't reaſonably be aſcribed to any thing elſe but the retaining of the Blood and Matter, which finding no Out-let, ſqueezed down, by reaſon of their bulk, the Veſſels and the Nerves, and hindred the Circulation of the Blood, and Courſe of the Spirits and other Liquors, ſo that the *Blood* became quickly corrupted, and cauſed all theſe Diſorders. Theſe ſame Accidents may be occaſioned by *Matter*, ſhut up in the Cavity of Wounds by *Tents* ſtoping their Orifice; eſpecially if that Matter is conſiderable for its Quantity, and very much crowded.

When in my younger Days I frequented Hoſpitals, and practiſed with very able Surgeons, I have ſeen at the time of dreſſing, the *Tents* for the moſt part expelled from the Wounds, in ſpite of the Bolſters and Bandage: Nature then clearly ſignifying her Intention. Nevertheleſs they continued ſtill to uſe them, forcibly thruſting them again into the Wounds, though not without much Pain. What a ſtrange Method is this? How is it poſſible for a Wound to cloſe up, ſo long as a foreign Body is entertained within it? If a Pea, or a little Ball, be kept in an Iſſue, tho' for ten Years, it will ſtill remain open: But if you take it out but for one half Day, you ſhall find it entirely filled up.

A Tent does the ſame to a Wound that the Ball does to an Iſſue; and *Fiſtula's* that trouble ſo many People all their Life, are the Effect of Tents, that have been inconſiderately uſed in the Cure of their Wounds. The Humours take their Courſe through theſe places, which they find open: This becomes firſt habitual, and then natural and neceſſary, and thereby the Fleſh is hardened, and becomes callous. Theſe Impurities which *Nature* ſometimes evacuates by ways ſurprizing to us, being detained in one place, became a Bag of Matter; and that ſame Nature, unwilling that any thing ſuperfluous and unprofitable ſhould remain with her, by a peculiar Sagacity makes a Virtue of Neceſſity, and uſes theſe Paſſages ſhe finds open to free herſelf from the Excrements and Humours that diſturb her: but at the ſame time a part of the * *Radical Balſam*, which is the Life and Support of the Parts, paſſes out alſo by the ſame ways.

* *Baume Radical.*

I know not to what I can better compare thoſe Apertures in the Body, through which Humours take their Courſe, than to thoſe of Trees, whether made by Nature herſelf, or the aſſiſting Hand of Man, by which the Sap that nouriſhes both the Trunk and the other Parts paſſes out. The Difference only lies here; that *theſe* help to encreaſe and preſerve the Trees, but *thoſe* to deſtroy and weaken the Body.

For

For certain it is that *Fiſtula's* conſiderably endamage the Parts, and thoſe who have them are never in an entire State of Health; nay, they ſhorten their Days, whatever any may alledge to the contrary. But that which ſurprizes me moſt, is, to find the afflicted Perſons brook the Inconveniencies they ſuffer with a kind of Satisfaction, fancying, that if in time they ſhould permit their Sores to cloſe up, then Death would undoubtedly ſoon enſue.

Wherefore when there is nothing to hinder the filling up of a Wound, *Art* hath nothing elſe to do, but to obſerve *Nature's* Proceedings, which ſometimes exceeds in the breeding of Fleſh in ſoft parts, and ſometimes in generating the *Callus* in hard parts. But 'tis obſervable, that in curing Wounds ſhe proves oftner ſuperfluous than deficient. Thus it appears, that Tents ought not to be uſed in Wounds, ſeeing Nature ſo very frequently throws them out, becauſe ſhe cannot bear the preſence of what is foreign. Don't we ſee, that as ſoon as ſhe is oppreſſed with any thing hurtful, all her Endeavours are uſed to get rid of it? She has a thouſand Means unknown to us, and often takes ſuch ſecret and ſingular ways as are hidden from the moſt curious Anatomiſts.

That young Man, under the Care of *Fernelius*, who had ſwallowed the Ear of Graſs that came out ſome Time after by a little Abſceſs between two of his Ribs, is a ſufficient Demonſtration of this Truth. *Ambroſius Pareus* alſo relates, that he took from the *Groin* of a Woman, a Needle that had entered at the Hip of the ſame ſide. In fine, the conſideration of the ſurprizing Ways whereby extraneous Things have been caſt out of the Body, obliges us to conclude, that Nature is very wiſe, and can't endure the leaſt Thing that is hurtful or diſquieting. A little Duſt in the Eye diſturbs all her Oeconomy, and no reſt is to be expected 'till it is out. A ſmall Crum of Bread that goes not the right way, but is by ſome motion, or the agitation of a little Air thrown into the Wind-pipe, does it not endanger Suffocation? What endeavours are made to caſt it out? The Air breaks forth with Violence from the Lungs, the whole Body is ſhaken, all its Parts are in motion, the Face is enflamed, the Eyes run with Tears, Convulſions follow, and this admirable Maſterpiece of Nature is all in Trouble and Diſorder, and all this is for a Thing in appearance moſt inconſiderable. A Stone or a little Sand in the Reins, Ureters, Bladder or *Urethra* will ſcarce permit a moment's reſt for the violent Pain: And indeed our Life may be called an Image of Death, ſo long

as

as a Stone is lodged in any of theſe Parts: So true is it that Nature abhors what diſturbs her.

Now 'tis to be obſerved, that according to our Method the *Dilaters* and *Tents* with which the Wound was filled at firſt, muſt be taken out, ſo ſoon as the Bleeding is ſtop'd; and that the ſureſt way for the Surgeon, is henceforth to leave off ſuch dangerous Means altogether, becauſe their uſe may irritate, and at the ſame time by touching the Veſſels, may open them and renew the Bleeding, which by protracting the Cure, occaſions new Troubles to the Wounded, as I have often ſeen.

Fabricius ab Aquapendente, *Part* I. *Book* 1. *Chap.* 2. ſpeaking of tranſverſe Wounds of the *Forehead*, adviſes to apply long and ſlender Compreſſes wet with the White of an Egg, one on each ſide of the Wound, and to preſs them together, ſo that the Lips may touch without ſtitchings, eſpecially if we would avoid the Deformity of a *Scar*. Now I know no Reaſon why the ſame Method mayn't be put in Practice in Wounds of other Parts of the Body, made by cutting Inſtruments: Nor do I underſtand why ſuch ſhould be dilated, ſeeing they require only Re-union. For my own Part, I have practiſed this way in many Places, and on different Parts of the Body, with the deſired Succeſs.

Thoſe who are not prepoſſeſs'd, or will reflect but a little on the *common Method*, will be convinced that I don't without Cauſe reject it. 'Tis eaſy enough to apprehend the Cauſe of the perpetual Pains ſuffered by thoſe miſerable Perſons whoſe Wounds are filled with *Tents* and *Doſſils*; for, having thruſt into the Sore *Lint* twiſted, hard and uneven, and applied thereon Plaiſters and Bolſters, all is made faſt with a Bandage that paſſes ſeveral times about the Part. Now, though this may ſeem not to be very ſtreight, yet it is ever tight enough to preſs upon the Tent, and cauſe it to touch every where upon lively and ſenſible Parts: For the inward Parts of our Body are indeed very ſenſible, and unaccuſtomed to the Touch of any extraneous Thing, ſo that the Wounded can't move in the leaſt without great Pain; his wounded Members are utterly diſabled, and by a kind of Neceſſity he is confined to his Bed, as a lame and impotent Paralytick, and always in one poſture, which is no leſs (if not more) pernicious than the Wound itſelf, eſpecially in Hoſpitals, where the Beds not being ſuch as are requiſite for the Eaſe and Comfort of the Sick, cauſe almoſt univerſal Excoriations, and oftentimes Mortifications and Gangrenes. This I have many times ſeen; and frequently through the Fault of thoſe who follow the ordinary Method of Dreſſing.

Not

Not that the other Parts of our Body are deſtitute of Senſe, any more than theſe I juſt now ſpoke of; thoſe that are ſo charitable as to viſit Hoſpitals will atteſt this; nothing is there to be heard at the Hours of Dreſſing but Cries and Howlings.

But we can't enough recommend to Surgeons, on this Occaſion, to uſe their Patients in the moſt gentle manner poſſible; for it muſt be owned, that there are ſome among them that would think they had not acquitted themſelves as they ought, unleſs they made thoſe under their Hands to roar out for ſome conſiderable time; which makes many to think, that *Surgery* and *Cruelty* are inſeparable.

CHAP. VIII.

The Reaſons of the Author's Practice, with the Motives that induced him thereto.

FROM what I have already ſaid, I know I ſhall be accuſed as if I only writ to find fault with the *Methods* now in uſe. Nevertheleſs I am not afraid to avow, that I am inſpired with a much nobler Deſign: I take no pleaſure to trample upon the Monuments of the Dead, or to carp at the Living; 'tis Conſcience alone that obliges me to maintain what I have advanced for the Good of the Publick. But as it will be an hard Task to perſuade ſome People of what is contrary to the Maxims they have ſucked in as it were with their Milk, it will be convenient to propoſe Examples of what ought to be followed, and to point forth what is to be ſhunned. For, in fine, 'tis here as in Religions, every one thinks his own Method the beſt.

Among the great number of thoſe, who at this Day practiſe *Surgery*, there are very few whoſe *Methods* agree. Some, without departing an Hair's breadth from the Opinion

nion of the *Ancients*, blindly follow their Dictates; and it is enough that any thing has been advanced by ſuch or ſuch an Author, to make it paſs into an inviolable Law. Others more active and ingenious, not regarding the received Cuſtom, beſtow liberal Jeers upon whatever is not the Product of their own Brain, and treading Antiquity under Foot, are every Day making new Syſtems of *Surgery*. I know not with which Party I ſhall be ranged: But I have done my beſt to accommodate what the Ancients have delivered, to the Opinion of the Moderns and the Circulation of the *Blood*; imitating in this the *Bees* that gather from every Flower, what is fit for making *Honey*: And if *Experience* may have any Sway, my Practice ought to obtain, as being confirmed by it.

Thoſe who extol the Cures they have done, have alſo Reaſons to ſupport their Practice; which becauſe of the Progreſs it has made, paſſes even at this Day for the beſt and moſt ſecure, in many Places. This Error hath taken ſo deep Root, and gained ſo many Followers, that notwithſtanding all my Experiences, I doubt not but many will ſtand out againſt my *Method*, reject my feeble Reaſoning, and treat me as a *Violator* of Cuſtom and received Maxims, and a raſh and inconſiderate *Innovator*. For with them

BODLEIAN BOOK PLATE

it is a general Rule, That a deep Wound ought to be kept long open, in order to a perfect Cure. Yea, the Sick themſelves being prepoſſeſſed in favour of this falſe Opinion, believe that the Accidents which happen ſome Months (yea, ſome Years) after they have been cured, proceed from the too ſpeedy cloſing up of the Wound, alledging, *The Wolf was ſhut up in the Sheep-fold.* As for my ſelf, I am perſuaded, and am able to maintain it, that almoſt all ſuch Accidents are cauſed by keeping the Wound *too long* open, whereby the Parts being much weakned, are hard to be reſtored to their firſt ſtate; ſo that the leaſt *Motion* or *Exceſs* renews the *Sore*, and brings back again the *Symptoms*.

As for *Wounds of the Head*, where the Scull is laid bare, Exfoliation infallibly enſues, if they are long kept open: If the *Cranium* is broken, the Alteration and the Accidents are yet more conſiderable, and cauſe often a Weakneſs, a Depravation of Senſe, Giddineſs, Head-ach, and other like Diſtempers, and ſometimes a Corruption of the Membranes, and of the Brain.

It is moſt certain, that a *Wound* cannot be kept long open, but a great *Suppuration* ſhall follow; and then, in ſpite of all Precaution, the Matter that is every where diffuſed will glide along, and reſt upon the Bone, and the moſt

moſt ſubtile Parts, as *Galen* ſays, paſſing into the Capacity of the Scull by the Fracture, will fall upon the Membranes, from whence it can't be got out, but by the Operation of the Trepan; and if neglected, will bring on mortal Symptoms.

Wounds of the *Thorax*, or *Breaſt*, may be clos'd up without Danger; as will be more largely made out by Experience, in ſome places of the Second Part of this Work: For thoſe which continue to ſuppurate for a long time, infallibly bring on the *Phthiſick*, *Aſthma*, *Cough*, *Shortneſs of Breath*, as alſo incurable *Fiſtula's*.

Tents cannot be kept in *Wounds of the lower Belly*, becauſe of the perpetual Motion of the Guts; and conſequently ſuch are ſecure from the Pains and Infirmities that follow upon their uſe.

Wounds of the *Reins*, of the *Emulgent Veins*, and of the *Ureters*, if not ſpeedily united, leave behind them incurable *Fiſtula's*, with a running of Urine at the Wound. The ſame happens in thoſe of the Bladder.

In thoſe of the *Joints*, if Tents be uſed, the Cure is very tedious, difficult, and dangerous; for very frequently there enſues a great Alteration of the *Tendons*, of the *Nerves*, and of all the Part; ſometimes a *ſhortening* or *lengthening* of the Member, with

with loſs of the nutritious Juice, and a Weakneſs that endures for Life.

Wounds of the *Extremities*, plied with Tents, cauſe an entire Diſſolution of the Nerves, and often the loſs of the Members: And thoſe of *carious Bones*, as well as thoſe of a *fleſhy Part*, beſides a great deal of Time ſpent in vain, occaſion much Pain, Vexation, and Charge.

I have ſeen *Wounds* of all theſe Sorts, ſome of them I have had dreſſed with Tents, where powerful Digeſtives were uſed to procure great Suppurations. I have met with others that were followed by all ſuch Accidents: But this I have obſerved, that ſuch as were dreſſed according to my Method, were preſerved from all theſe troubleſome Symptoms.

'Tis known to every one, that in *Wounds* made by cutting Inſtruments, Union is immediately to be endeavoured. In order to this Deſign therefore, we ought not to fill ſuch *Wounds* with Lint, as we have formerly ſaid, for that this directly thwarts it. It is alſo very hurtful to uſe Digeſtives, becauſe they disjoin the Parts of the *Blood*, and corrupt it.

The Fall of the *Eſchar* in *Gun-ſhot Wounds* cannot be prevented, whatever Diligence be uſed; wherefore Suppuratives are here of no uſe, ſeeing Nature can do that Work without

out their Aſſiſtance, which only weaken and deſtroy the Temperament of the Parts to which they are applied. Large Suppurations therefore are not neceſſary in the cutting of *Wounds*.

For, in fine, I can't diſcover any Reaſon why it ſhould be judged requiſite that a *Wound* ſhould ſuppurate a long time, in order to be brought to a compleat Cure: And ſurely before we abandon our ſelves to ſuch a dangerous Practice, it is neceſſary firſt to underſtand what *Pus* or *Matter* is, whence it comes, and what is the Neceſſity of it.

We may obſerve then, that *Matter* is nothing elſe but the *Blood* of ulcerated Parts, diſcharged into the *Wound* from the Orifices of Arteries that are cut or torn; and this mingling with the nutritious Juice, brought to the Parts for their ſuſtenance, renders them lame as it were, and uſeleſs. If by the Compreſſion of *Tents* or *Dilaters* the *Blood* be ſqueezed out of the Veſſels, it may fill the Capacity of the *Wound*, whereas otherwiſe it would have held on its ordinary Courſe. We are not then to be ſurprized, if the *Blood* and the *nutritious Juice* are ſuddenly turned into *Matter*, ſeeing they are out of their natural Place; for even as a ſmall Rivulet may make a great Lake, if its Waters are kept in with

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a Dam: Juſt ſo the little Pipes that are laid open in a Wound, tho' but ſmall, being preſſed, as has been ſaid, by a *Tent*, which divides them more, and hinders their Reunion, continually pour forth ſuch Liquors as they contain; and the *Tent* ſerving for a Bank, a Lake is formed in the Cavity of the Wound. We ought not therefore to wonder, if plentiful Suppurations continue, ſo long as this Method is followed; and it is an undoubted Error to account ſuch Evacuations profitable. *Etmullerus*, in his Medicinal Surgery, is of opinion, that a Wound would cloſe up of it ſelf, if it was not hindered: He ſays, we ought to endeavour to prevent the ſtench and putrifying of the *natural Balſam* of the wounded Part, and to uſe *Balſamicks*, according to the Principles of *Helmont*, to hinder it from degenerating into a hurtful Acid, and to preſerve it from corrupting.

In fine, he finds fault with the Surgeons for uſing firſt *Suppuratives*, then *Digeſtives*, and after *Mundificatives*, *Sarcoticks*, and *Glutinatives*, as they term them: *That Way*, adds he, *is too tedious, delays the Cure, cauſes Inflammation of the Part; alters the* nutritious Juice, *and often turns the Wound into a* ſordid Ulcer.

It is apparent by this Authority, that *one Remedy skilfully managed* is ſufficient to anſwer

ſwer all the Intentions propoſed in the Cure of Wounds; that *great Suppurations* are hurtful; and that it is for the great Advantage of the Wounded, to reject the *bulky Rubbiſh of unprofitable* Drugs.

As for ſuch Diviſions in the Body, where many ſmall Veſſels are quite cut aſunder, if the Lips of the Wound are brought together, they will unite themſelves, purſuant to the Opinion of many *Authors*, and the Teſtimony of *Experience*, provided nothing extraneous go between.

Now touching *Gun-ſhot Wounds*, that are ſo common in the Hoſpitals of the Army, I am bold to affirm, that my Practice has given me more Inſight into their Nature, than all the Authors that ever wrote on the Subject. Not to enter upon a Debate concerning Bullets, it is evident, that the Effect they produce in the Body does ſomething reſemble Cauterizing; but though ſometimes I uſe this Word, I can ſcarcely believe that they really cauterize; but being round, ſolid, and compact Bodies, they cauſe Contuſions; they tear and bruiſe whatever is in their way, and occaſion a Heavineſs in the wounded Part.

It is certain that the Bullet very often ſtops the Bleeding of the Wound, whether by the Diſorder it cauſes in the Parts through which it paſſes, or by cauterizing with its touch

touch the Arteries and Veins: But be it how it will, the Courſe of the Blood is ſtopt, and the Paſſage between the Arteries and Veins is interrupted, ſo far as the Wound and Contuſion reach. The Heart, according to the Law of Circulation, ſqueezes the Blood it has received into the *Aorta*, from whence paſſing into all the other Arteries, its Courſe is ſtopt at the Wound, where it can't as formerly be received by the Veins, and finding no free Paſſage, it extends the containing Veſſels, and forcing its way, diffuſes itſelf according to its own Quantity, and the Space it finds: Hence proceeds the Hardneſs, Swelling, and Inflammation ſo ordinarily in *Gun-ſhot Wounds*. If the Blood be there corrupted, or ſpoilt by ſome *malignant Acid*, the Symptoms become yet more troubleſome and obſtinate; and after the Fall of the Eſchar, Abſceſſes, or large and grievous Suppurations, enſue.

A ſimple *Contuſion* only, for like Reaſons, is capable to produce the ſame Accidents; which being nothing but a diſordering of the Fibres and little Pipes, that changes the Regularity and Situation of the Pores, the Circulation is rendred uneaſy, and the Part choaked up. From hence comes the Dulneſs and Abſence of the Spirits, which if not ſpeedily recalled, can't but be attended with grievous Conſequences.

I ſhall

I ſhall ſpeak a Word or two of the Cure of a *Contuſion*, in the laſt Part of this Book: Here I ſhall only ſhew, that *Tents* are very deſtructive to *Gun-ſhot Wounds*, in regard they hinder the Fall of the Eſchar, and coming away of whatever is bruiſed, which ordinarily is diſperſed by Suppuration. A *Tent* actually hinders the paſſing out of that *Matter*, and retains it in the Wound, where it cauſes all the Miſchiefs whereof we have ſpoken. It may alſo, after the Eſchar is removed, renew the Bleeding; bruiſing by its rubs, and bringing to Suppuration, the young Fleſh bred upon the Orifices of the wounded Veſſels, while the Eſchar was ſeparating.

The Multitude of thoſe who are to be ſeen maimed, aud with wooden Legs, and *Fiſtula's*, can witneſs to their Sorrow the pernicious Effects of *Tents:* Nay, how many are there, who by the Loſs of their Lives ſhew the fatal Conſequences of theſe Means! Could they have ſpoken from the Grave, they would have ſaid more than I can on this mournful Subject, and ſo the deſtructive Cuſtom had ſoon been ſuppreſt. And after all the Pains ſuffered by theſe unfortunate Perſons, their Complaints and Cries have not yet been able to cauſe a *Method* eſtabliſhed and authoriſed by Antiquity to be laid aſide:

aſide: Neither has the ill Succeſs of ſo many Cures in vain attempted, been hitherto capable to undeceive the Practitioners of Surgery.

However, I thought myſelf obliged to communicate to the Publick, what I knew upon this Subject; that I might, if poſſible, procure for afflicted Patients, a *gentle*, *ſpeedy* and *eaſy Method*, for the Comfort and Encouragement of ſuch as ſo generouſly expoſe their Lives for the *Glory* of their Prince, and the *Good* of their *Country*.

All my *Practice* is levelled at theſe Ends, as may be ſeen by the Sequel. I abſtain from uſing *Tents* and *Dilaters*, as much as I can, and as the Caſe will bear: I occaſion little or no Pain, ſave at the firſt Dreſſing; and then I always widen the Wound, eſpecially if it is a *Gun-ſhot* One, and do my beſt to draw out the *extraneous Bodies:* Now on this occaſion I have three things further to recommend, which are, to dreſs *gently*, *ſpeedily*, and *ſeldom*.

There is a way of dreſſing Wounds made with Iron Inſtruments, uſual among the Soldiers, called the *ſecret Dreſſing*, where they carefully ſuck the Orifice of the Wound, in order to draw out the Blood therein contained; then they take *Samaritan Balſam*, or *Oil* and *Wine* mixed without boiling, and ſometimes either of them alone, which they ſquirt

ſquirt into the Wound from their Mouth, and without any other Dreſſings, cover, and bind it up, muttering ſome Words between their Teeth, to make the Method appear myſterious, which cauſes many People to think it Magical.

But theſe Words are ineffectual, and their Vertue imaginary, ſerving only to palliate and authorize the Ignorance of ſuch People, who know not what they do; and to deceive the Imagination of the Wounded. Theſe Cures, though accounted miraculous, have nothing in them ſupernatural, and may be performed without invoking the Aſſiſtance of *Dæmons*. 'Tis known to every one, that *Blood*, when it is out of the Veſſels, coagulates, and corrupts in the Wound, if it make any Stay there, and that by ſucking out the extravaſated *Blood*, Suppuration is prevented, and alſo that is removed which might hinder the Re-union.

CHAP. IX.

That it is neceſſary to dreſs *Wounds* gently.

GEntleneſs is one of the Things that are indiſpenſibly required in the curing of Wounds.

Wounds. This Circumſtance is ſo neceſſary, that without it other things have ſeldom the deſired Succeſs; yea, ſo much was I poſſeſſed in Favour of this Opinion, that when I ſee ſome that are rigorouſly handled, I often admire how they ever come to be cured: And indeed they never are, without a great many Accidents, that fall out in the Progreſs of the Cure.

'Tis common for a wounded Perſon to be ſeized with a *Fever*, which being ſymptomatick, muſt be a Conſequence of the *Pain*. The *Inflammation*, that brings along with it ſuch a numerous Train of troubleſome Accidents, is often occaſioned by an Irritation of the ſenſible Parts. *Want of Sleep* proceeds ordinarily from nothing elſe; but the *Pain* is either over all the Body, or in one Part only. Now if by *Dreſſing gently* theſe three Accidents are avoided, we may quickly hope to ſee a perfect Cure.

Tents, *Dilaters*, and *Setons*, as hath been already ſufficiently obſerved, are the principal Cauſe of the *Pain* that the poor wounded endure, and the Occaſion of ſo many hurtful Accidents; their remaining in Wounds being infallibly attended with moſt deſtructive Conſequences. If then we lay them aſide, we may prevent the *Pain*, and what follows upon it; and ſo having the Command of whatever may give us trouble

trouble in Dreſſing, we may manage the Cure as we pleaſe.

Finally, we ought to endeavour with all Care to remove ſo ſoon as poſſible what might cauſe *Pain*, and by *Evacuations* and *Diverſions* wiſely to withdraw what would foment it: And if it takes Place already, we muſt apply what is moſt proper to eaſe and overcome it: For, in a Word, Pain is the moſt *formidable Enemy* in the Progreſs of any Diſeaſe whatever.

CHAP. X.

That it is neceſſary to dreſs *Wounds* ſpeedily, *in order to prevent the Acceſs of the* Air.

IN this Chapter I endeavour to ſhew, that the *Dreſſing* of Wounds ought to be performed *ſpeedily*, becauſe Experience hath taught me, that the *Air* is a mighty Hindrance of their Cure: And this is one of the chief Reaſons that obliged me to follow this Method: For though ſome Pain in Dreſſing is inevitable, yet by this Means it laſts for ſo ſhort a time, that the Wounded ſcarce perceive it. By this Means the *Air* has not time enough to exert its Influence

upon the Fleſh deſtitute of its Coverings; and the nitrous Parts, with which it is thought to abound, can't paſs to the Bottom of the Wound; for I am of Opinion, it is the nitrous, clammy, and as ſome think, arſenical Qualities or Particles of the Air that deſtroy the due Temperament of the Parts, when deprived of their natural Cover, and that conſumes, or at leaſt alters the *natural Balſam* or nutritious Juice, which is as the *Cement* that unites the divided Parts.

All the *Ancients* as well as the *Moderns* are agreed in this, that the *Air* is an Enemy to Wounds: And Experience atteſts, that even the moſt pure and ſubtil Air, is ever attended with a certain ſharp and clammy Acidity, that ſticks to Iron and Steel and makes them ruſt.

'Tis the ſame *Air* that occaſions ſo many Diſorders, that alters and corrupts the *Bones*, hurts the *Nerves*, and deſtroys the *Tendons*, corrodes the *Fleſh*, and utterly marrs the Temper of the Parts, by waſting the *Spirits* that preſerve the *radical Moiſture*, which with a little Help, and oftentimes almoſt without any, unites broken *Bones* by a *Callus*, fills up *Wounds* with Fleſh, cleanſes *Ulcers*, and brings them to a Scar.

Hippocrates, Sect. 5. Aphor. 20. ſays, that the *Cold* is offenſive to ulcerated Parts; that

it hardens the Skin, cauſes Pain and Hardneſs, occaſions Lividity, Shiverings, Fevers and *Convulſions*.

By the *Cold* here is to be underſtood the Air, by means of which Diſorders are excited in us; it is corroſive, and therefore exaſperates the ſenſible Parts; it hardens the Skin, thereby hindering the Tranſpiration of the *Vapours*, which being retained, cauſe Pain, Hardneſs, and Fluxions of Humours, and theſe produce Shiverings and Fevers, and oftentimes are followed by Lividity, *Convulſion*, and a Gangrene.

The Acceſs of the *cold Air* is indeed one of the Cauſes of the Pain, which is ſo common in Wounds remaining too long uncovered, becauſe it coagulates the Humours, and cauſes the *Blood* in the ſmall Veſſels to become more ſharp, and ſo to ferment and corrupt.

A little Experience is ſufficient to make one agree to theſe Reaſons: We ought to ſecond the Deſigns of Nature, that are ever aimed at the Preſervation of what is moſt precious, ſuch as the *Spirits*: Now we may be aſſured, that when a Wound is left uncovered, or often opened, there is occaſioned a conſiderable Loſs of theſe ſame Spirits, whereby the Part is ſo weakened, that being unable to make the right Uſe of the Nouriſhment ſent for its Maintenance, it is all

changed into corrupt Matter and Excrements.

That *Cold* is hurtful to Wounds, no-body doubts: All are likewiſe agreed, that the Air is at all times colder than the inward Parts of our Body. Now if the Touching of the Air only, rots the Bones; if it acts with ſuch Force and Violence on Bodies ſo ſolid as they are, it will undoubtedly be yet more deſtructive to the Nerves and nervous Parts, that are ſo tender; as alſo to the *Tendons*, to the Fleſh, and to all Parts in general, to which it has Acceſs.

The Air moreover produces many other Accidents in Wounds: For, as has been ſaid, the Spirits are diſſipated by the long and frequent Attacks of the Air, whereby its acid Parts being at liberty, and not entangled, eaſily ſtick to the Fleſh, and other uncovered Parts, which they corrode and tear with their Points; hence proceed pricking Pains, the Cauſe of which ſeveral are oftentimes at a Loſs to conjecture.

This ſame Acidity of the Air coagulates the Blood in the Mouths of the Arteries that open into the Wound, hinders its Courſe, and makes it to ſwell up the Veſſels, and very often alſo to diſcharge itſelf on the Part: Hence are Tumours, Fluxions, Hardneſs, and if it ferments, large Abſceſſes; for Fermentation here is only the changing of Blood into Mat-

ter. Now the Blood having neither the ſame Situation nor Motion as formerly, and its parts being disjoined, eaſily corrupts, and ferments in a little time; unleſs we believe that the Air can't congeal the Blood in the Veſſels, which yet is beyond Controverſy.

That the Air is very piercing, appears from *Chilblains* and *Kibes* in the Heels, where it has the Force to congeal the Blood in the Veins and Capillary Arteries of the Parts afflicted. Since then it has ſuch Influence on Parts cloathed with the common Teguments, what will it have on ſuch as want them? In fine, if it is able to coagulate the Blood in the Veſſels where it may freely circulate, much more may be feared from its Acidity in Wounds, where the Courſe of the Blood being in a manner interrupted, the wounded Part receives but little Aid from the natural Heat, and the Spirits; and the Blood itſelf, that precious Balſam of Nature, being unmoved, and not receiving freſh and vigorous Supplies from the Heart, is corrupted, as was ſaid formerly, and turned into Matter, inſomuch that if we preſs the Places about the Wound, we perceive a certain clammy Matter to come out as from ſo many little Pipes, which oftentimes is corrupt and ſtinking.

Now if *Nature*, which is every way admirable, and always induſtrious in preſerving,

don't in ſuch a Caſe exert her utmoſt Efficacy, the Part muſt be mortified, in ſpight of all the Efforts of the inconſiderate Surgeon: And then if it is a Member that may be cut off, the next thing is to deliberate whether this ought, or may be done without Danger. Sometimes 'tis doubted whether the wounded Perſon can bear up under the Rigour of ſo painful an Operation, conſidering his ill Temperament and Diſpoſition of Body, which only are accuſed, as the Cauſe of all theſe Accidents; for the Wound of itſelf was inconſiderable, and might have been ſoon cured, in a Perſon of a ſtronger and better Conſtitution: Or otherwiſe the Blame is laid upon ſome venereal Venom, Vice of the Parent, Diſorder, *&c.* In fine, the *Patient* and his *Temperament* are always found Guilty, and fall Victims to Ignorance. I have been in many Places myſelf, where ſuch things have happened, and where neither the Perſons wounded, nor the Surgeons underſtood the true Cauſe of the ſupervening *Accidents.* It is however, very requiſite in this to employ all our Care, chiefly in *Hoſpitals* of the Army, where we ſeldom find all thoſe Conveniencies that were to be wiſhed, for correcting the Cold and the ill Quality of the Air, which frequently is infected, and corrupted. 'Tis in ſuch Places where we ought to hinder it with all our Power to paſs

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to the inward Parts of our Body, or to get acceſs to ſuch Parts as are deſtitute of their Coverings, leſt at the ſame time it impart to them its deſtructive Impreſſions.

It may poſſibly be objected to me, that if that acid and nitrous Quality of the *Air* can produce ſuch Diſorders in Wounds, we ought much more to be incommoded, by the frequent and neceſſary Uſe thereof in Reſpiration. But 'tis anſwered, that the *Wind-pipe* and *Lungs* putrify the Air, which is in a manner filtrated and prepared by them, and ſo becomes friendly to Nature, which only uſes the pureſt Parts, driving out by Expiration, together with the hot Vapours or Exhalations of the Breaſt, that which is uſeleſs and hurtful. But it is not ſo in Wounds that have no Spring. 'Tis only the *Lungs* that are fitted, and appointed for receiving the Air; they alone perform the Office of Bellows to prepare, purify, or to expel it, according to the Neceſſity of our *Machine.*

Beſides it may be ſaid, that when the Air enters into Places that are covered and furniſhed with Membranes, its acid Parts ſlide upon them, and take no hold; but if there chance to be *Ulcers* in the *Lungs*, the Air will then cauſe conſiderable Diſorders; and the *Cough* which afflicts ſuch kind of Patients, proceeds undoubtedly from nothing

don't in ſuch a Caſe exert her utmoſt Efficacy, the Part muſt be mortified, in ſpight of all the Efforts of the inconſiderate Surgeon: And then if it is a Member that may be cut off, the next thing is to deliberate whether this ought, or may be done without Danger. Sometimes 'tis doubted whether the wounded Perſon can bear up under the Rigour of ſo painful an Operation, conſidering his ill Temperament and Diſpoſition of Body, which only are accuſed, as the Cauſe of all theſe Accidents; for the Wound of itſelf was inconſiderable, and might have been ſoon cured, in a Perſon of a ſtronger and better Conſtitution: Or otherwiſe the Blame is laid upon ſome venereal Venom, Vice of the Parent, Diſorder, *&c.* In fine, the *Patient* and his *Temperament* are always found Guilty, and fall Victims to Ignorance. I have been in many Places myſelf, where ſuch things have happened, and where neither the Perſons wounded, nor the Surgeons underſtood the true Cauſe of the ſupervening *Accidents*. It is however, very requiſite in this to employ all our Care, chiefly in *Hoſpitals* of the Army, where we ſeldom find all thoſe Conveniencies that were to be wiſhed, for correcting the Cold and the ill Quality of the Air, which frequently is infected, and corrupted. 'Tis in ſuch Places where we ought to hinder it with all our Power to paſs

to

to the inward Parts of our Body, or to get acceſs to ſuch Parts as are deſtitute of their Coverings, leſt at the ſame time it impart to them its deſtructive Impreſſions.

It may poſſibly be objected to me, that if that acid and nitrous Quality of the *Air* can produce ſuch Diſorders in Wounds, we ought much more to be incommoded, by the frequent and neceſſary Uſe thereof in Reſpiration. But 'tis anſwered, that the *Wind-pipe* and *Lungs* putrify the Air, which is in a manner filtrated and prepared by them, and ſo becomes friendly to Nature, which only uſes the pureſt Parts, driving out by Expiration, together with the hot Vapours or Exhalations of the Breaſt, that which is uſeleſs and hurtful. But it is not ſo in Wounds that have no Spring. 'Tis only the *Lungs* that are fitted, and appointed for receiving the Air; they alone perform the Office of Bellows to prepare, purify, or to expel it, according to the Neceſſity of our *Machine.*

Beſides it may be ſaid, that when the Air enters into Places that are covered and furniſhed with Membranes, its acid Parts ſlide upon them, and take no hold; but if there chance to be *Ulcers* in the *Lungs*, the Air will then cauſe conſiderable Diſorders; and the *Cough* which afflicts ſuch kind of Patients, proceeds undoubtedly from nothing

elſe, but the *Irritation* occaſioned by the *Air*, in parts deprived of their Covering.

Moreover, it muſt not be denied, that the *Air* abounds with very ſubtil and piercing Parts, becauſe it will paſs through the *Scarf-Skin*, the *Skin*, and other Teguments. There are many Examples which ſhew, that Perſons have ſubſiſted by means of the *Air* paſſing through the Pores of the *Skin*, when Reſpiration was altogether ſuppreſt, whether by *Suffocation*, or other ſuch like Accidents. Some have alſo been taken down from the Gallows, who were thought to have been a pretty while dead, and yet with a little Help have recovered: Whence it is eaſy to infer, that *Nature* had found the means to furniſh the Heart and Lungs with a ſufficient Quantity of *Air*, to refreſh them during that Interval, by the *Pores*, ſeeing it could not paſs by the way of the Wind-pipe. A like Conſequence may be drawn from thoſe that lay in a *Lethargy*.

We may therefore reaſonably infer, that if the *Air* is ſo ſubtil as to pierce and paſs through Membranes ſo cloſe and compact, it ought much more to penetrate conſiderably beyond the Extent and Cavity of a *Wound*, where there is nothing to purify or ſubtiliſe it; as there is when paſſing through the *Pores* of the *Skin*, it ſupplies the Place of Reſpiration: For ſince here the *Scarf-Skin* keeps

keeps back the more groſs, earthy, and clammy Parts of the Air, we have reaſon to think that it ought not to produce any bad Effects in the Places to which it comes. It were to be wiſhed that *Wounds* were covered with ſomething at the times of Dreſſing, which might perform the Office of the *Scarf-Skin*, and exclude the acid and viſcous Particles of the Air, together with the other *noxious Effluvia* with which it is filled: For if theſe *Exhalations* floating in the Air are the Original of ſo many Diſeaſes, as ſome *modern Philoſophers* affirm, why mayn't they occaſion very *dangerous Symptoms*, when they take hold of and cleave to live and ſenſible Parts? Now, in regard theſe *foreign Particles* are capable of Alterations no leſs than the Air itſelf, we may be aſſured, that the ill Qualities which this has contracted in *Hoſpitals*, by the Breath and Tranſpiration of the Sick, are alſo communicated to thoſe, ſince ſuch *Atoms* have a Subſtance, and a certain Form.

Theſe Carbuncles, that are ſo frequent in *Hoſpitals of the Army*, are a ſufficient *Proof* of what I ſay. They are occaſioned, as ſome think, by the Arſenical Particles in the Air, which being taken in by Reſpiration, are thrown out by the Strength of the natural Heat upon ſome *Emunctory*. Now, ſince this falls out much oftener in *Hoſpitals* than elſe-

where, we may infer, that the Air alſo is here much more repleniſhed with theſe ſubtil and impure Particles, by reaſon of which the Wounds (ill treated) without very great Care, become ſometimes *cancerous*, always *putrid*, and often *fiſtulous* and *incurable*.

I have learned by my long attendance upon Hoſpitals, that thoſe Places where the Sick have remained for ſome time, retain, long after they are gone, the ill Smell communicated by them. This I believe is owing to the impure Particles that ſtick to the Walls: Whence thoſe who deſign afterwards to live in the Place, are obliged to plaiſter and whiten the Walls, that they may not be hurt by the pernicious *Effluvia* proceeding from them.

Cloaths, and other Goods, brought from Places where the *Plague* is, muſt be cleanſed and purified from the *Peſtilential Particles* that cleave to them; without which Precaution they might excite a general *Peſtilence* in the Places to which they are brought. 'Tis this which inclines me to think, that the nitrous and viſcous Quality of the Air reſides in thoſe Particles or *Atomes*; which if they are capable to ſtick to a Body ſo ſmooth and poliſhed as a Wall, and that for a long time, without loſing either their bad Smell, or ill Qualities, much more will they do ſo to a Wound uncovered, which is always moiſt,

and

and where they may get eaſier hold and act more readily, becauſe of the tenderneſs and weakneſs of the Parts.

The dead Fleſh of any Creature, if it is often handled and expoſed to the *Air*, ſuddenly putrifies; and a *Fœtus*, a Member, *&c.* if it be kept in a cloſe Veſſel covered with Spirit of Wine, may be preſerved for ever; whereas on the contrary, a little *Air* will diſſolve it, and reduce it to nothing

That the *Air* is a *mighty Enemy* to Wounds, is a truth owned by the modern Practitioners of Surgery, no leſs than by the Ancients; but there are few take ſufficient Care to hinder its acceſs to the wounded Parts. Knowledge is in vain when not put in Practice. Nevertheleſs this is a thing ſo abſolutely neceſſary in the Cure of any Wound whatſoever, that without it nothing that a Surgeon's Art can perform is to any purpoſe, but all is hurtful and deſtructive.

From what has been ſaid, Conſequences may be deduced very uſeful in Practice. All the Regard I have for *Antiquity*, was not prevalent enough to keep me from declaiming againſt an Abuſe, tho' eſtabliſhed by Cuſtom; for Truth depends on the things themſelves, and not on the Opinion the Ancients had of them. I know many have already expreſſed themſelves on this Subject, much after the ſame manner as I have done. *Celſus*,

who ought not to be reckoned among the Moderns, has written ſomething that looks this Way. In his Book *of Wounds of the Scull*, Chap. 4. he ſays, that Fleſh breeds eaſily enough in any Part of the Head, except a little above the Space between the *Eye-brows*, where often there remains an incurable Ulcer, becauſe in that Place there is a Cavity of the Bone full of Air, bordering upon the *Os Cribroſum*, which *Air* hinders the filling up of the Ulcer.

By all this then it evidently appears, that the *Air* is a powerful *Impediment* to the *Cure* of *Wounds*; and that the *ſpeedy Method* of Dreſſing ought to be preferred to that which is yet uſed in many Places. And to conclude, it is certain that the Pain cauſed by the uſe of a *Tent*, its remaining in the Wound, the length of the Time taken up in Dreſſing, and the frequency thereof, of which laſt I ſhall ſpeak in the following Chapter, are the genuine *Sources* of all the Accidents that attend Wounds. Wherefore we muſt *dreſs ſpeedily*, and according to our *Method*, if we would prevent many dangerous Inconveniences.

CHAP.

CHAP. XI.

That Wounds ought to be dreſt ſeldom.

GALEN, in his fourth Book of the *Compoſition of Medicines*, Chap 4. orders to dreſs *Ulcers* but once in three Days. This Method he acknowledges to have come from *Aſclepiades*; and I can't but wonder that ſuch a Practice has found ſo few Followers, conſidering 'tis ſo neceſſary and advantageous for the Patient.

If *Ulcers* require not to be dreſt every day, as this Author thinks, freſh Wounds do yet much leſs call for it. Nevertheleſs it is the Cuſtom, in almoſt all *Hoſpitals*, to dreſs regularly twice a day; and, I believe, there is ſcarce one to be found that does otherwiſe, excepting that of *Briançon*, where they dreſs the wounded, ſome only *once* a day, and others but *once* in two, three or four days. If I had found this Method hurtful, I would not have been ſo wicked as to continue uſing it, much leſs deſire that others alſo might do the ſame.

Pareus, (*Book* 13. *Chap.* 11.) treating of *Ulcers*, ſeems to be much inclined to the Opinion of *Galen*, when he diſapproves frequent Dreſſing. And yet in his eleventh Book, *Chap.* the 5th, ſpeaking of *Gun-ſhot* Wounds,

Wounds, he orders to dreſs them twice a Day, and often once every eight Hours.

It is ſurprizing, that ſo famous an Author as *Pareus*, who believed the Air extreamly prejudicial to Wounds, and adduced many Paſſages from the Ancients to ſupport that Opinion, ſhould have left behind him Rules altogether repugnant to it. But 'tis probable he was ſo buſied in compiling ſo great a Work, that he had not time enough to make the neceſſary Reflections upon this Subject, which requires a very diligent Application; and this may be the Reaſon why in many Places he contradicts himſelf.

Fabricius ab Aquapendente, Page 1. *Book* 2. *Chap.* 7. diſcourſing of the Way to preſerve the Subſtance of the Parts in ſimple Wounds, affirms again and again, that it is enough to take off the Dreſſings once in three or four Days; which he confirms by the Authority of *Galen*, where he treats of the *Cure of putrid Ulcers.*

'Tis certain, that the ſeldomer a *Wound* is dreſſed, the leſs it matters, provided it be not ſtuffed with Lint or ſome ſuch thing. The *Remedy* alſo has the more time to communicate its Vertue to the Part, which ſeems in ſome Sort to be nouriſhed thereby; and the nutritious Juice has more liberty and time to reſtore the loſt Subſtance, and re-unite the divided Parts. On the other hand,

hand, if it is often dreſt, the Strength of the Remedy being deſtroyed, and its Vertue diminiſhed, it becomes ſo weak, that it has no effect, and its moiſture running away, like the Sap of a Tree when 'tis pierced, is mixed with Matter, and turned into *Pus*.

What *Nature* does in uniting broken Bones, may inſtruct us what we ought to do in the curing of Wounds. We ſee that a *Callus* is bred without the aſſiſtance of any thing, by the wiſe Contrivance of Nature only, if ſo be that ſhe is not by frequent Dreſſing, or indiſcreet Motions of the Part, diverted from her Work.

When the little *fibrous Threads* begin to be formed in a Wound, in order to unite the Parts that are divided, and the nutritious Juice is communicated to the Part, to reſtore it to its natural State; if then the Part is often diſturbed with frequent Dreſſing; if the Wound is ſearched with the Fingers, or with a *Probe*, or a dry *Tent*, *&c.* what Nature has done, will be bruiſed and ſeparated, and her Work deſtroyed as ſoon as begun; ſo that if this Method is continued, the *nutritious Juice* becomes thick, and hard, and cleaves to the ſides of the Wound, where it forms a *Calloſity*, and often a *Fiſtula*.

Generation then, which is the principal Work of *Nature*, cannot be accompliſhed without Reſt; ſo true it is that Repoſe is neceſſary

neceſſary to her in all her *Operations*. Hence it is, that I cannot apprehend by what Reaſons they are influenced, who by frequent and painful Dreſſing, without any Neceſſity, exaſperate the Wounds; and I proteſt, I could never my ſelf endure ſo cruel a Method. Sometimes they ſearch and ſound them with their Fingers, ſometimes with an Inſtrument: and, not contented with this, if they fancy they have found any thing, deſire their Friends preſent, and their Boys, to do the ſame. And in this miſerable condition is the wretched Patient detained, ſometimes an Hour, and that moſt frequently twice a Day. I dare not venture to name the Places in *France*, *Italy* and *Germany*, where I have ſeen the Wounded uſed in this manner, and that by ſuch as held very conſiderable Poſts, where a *good Method* was extreamly neceſſary.

At laſt, after much time has been ſpent in raking into the Wound, they think they are bound in Credit, for the ſatisfaction of the Wounded and the By-ſtanders, to draw out ſomething, and ſhew it publickly, leſt they ſhould ſeem to have laboured in vain. Now if it ſhould chance that at length any little Piece of a *corrupted Membrane* is found, (which would not be ſtrange in a Wound dreſt after this manner, where *Corruption* often cauſes great Diſorder) it is drawn out with abun-

abundance of *Ceremony*, and the *Operator* fails not to declare, with great Confidence, that *this* was it which *occaſioned* the Reſtleſneſs and Pain of the preceding Night. And now, you muſt think, the *wounded Perſon* is half cured.

Heavens! what Abuſe! Is it poſſible that any Man can be ſo much impoſed upon? I would gladly underſtand what it was that did ſeparate this Shred of a Membrane, or theſe Fibres, *&c.* It will be anſwered, without doubt, that it is *Nature*, which endeavouring a *Re-union*, rejects that which oppoſes it. I demand again, How was it brought to this Place? By the ſame *Nature*, will one ſay. And why then will ſhe not go and drive that extraneous thing quite out of the Body, ſeeing ſhe has done ſo much? She is able to drive out Bullets, tho' faſtened in a *Bone*, (as I ſhall ſhew in the Second Part) to expel Splinters, yea, to bring them to the Orifice of the *Wound*, and that a conſiderable time after it has been cloſed up; why ſhould we then apprehend that ſhe will leave ſuch things within, from which ſhe may ſo eaſily free her ſelf, either by the Orifice of the *Wound*, or by ſome other more convenient way? For 'tis certain that *Nature*, left to her liberty, ever takes the neareſt way. Beſides, all the Parts of the *Body* have an Elaſticity, or Spring, whereby any foreign Thing is

BOOK CLUB

natu-

naturally driven from the Center to the Circumference.

Anthony Benevent a Phyſician of *Florence* relates, that a certain Woman ſwallowed a very large *Needle*, which two Years after came away by her *Navel*. And *Tarentus*, a Phyſician alſo, reports, that a Maid who had ſwallowed a *Needle* about four Fingers breadth in length, voided it ten Months after by the *Urinary Paſſage*.

From hence it appears, that the Induſtry and Sagacity of *Nature* ſurpaſſes that of all the *Eſculapian Family:* She knows what ſhe does, and wants not to be inſtructed in the Ways ſhe ought to take, in order to drive out of the *Body* whatever oppreſſes her, or is *foreign* and *noxious* unto her. The *Surgeon* ought only to employ his utmoſt Care to underſtand and *follow* her: He muſt ſtudy her Deſigns, and take all care not to divert her from her Enterprizes, conſidering ſhe does nothing in vain.

After what I have ſaid concerning *Nature*, I would not have any to think that I am one of thoſe that regard her as a Deity, and aſcribe to her a *Reaſon*, whereby ſhe diſpoſes of all her wonderful Works. *Reaſon* I take to be a peculiar Privilege of the *Human Soul*; neither am I of the *Opinion* of *Empedocles*, that whatever ſhe does is myſterious: 'Tis he that *Ariſtotle*, in his *Third Book*

Book of *Metaphyſick*, ridicules for giving no other Reaſon for many things that were asked him, but this; that it was Nature's Pleaſure. All I ſay is this, that if her Operations are marvellous, they are owing to her powerful *Author*, who has entruſted her with whatever we have that is precious.

But to return to my Subject: 'Tis fit I ſhould advertiſe my Reader, that I would not have any follow my *Method of ſeldom Dreſſing*, unleſs firſt he hath entirely laid aſide the Uſe of Tents and Dilaters, which, by retaining the Matter, would cauſe a Fermentation, whereby theſe ſame Tents and Doſſils would likewiſe be corrupted. This is what fell out *not long ago* in a Cure to which I was called; the Dilaters that had been uſed were carried along with the Matter that was diſcharged between the Muſcles, and there putrifying, the *Corruption* was quickly communicated to the neighbouring Parts: Whence it appears, that this *Method* is attended with peculiar and inſeparable Circumſtances, that muſt not be neglected.

M. *Verduc*, in his *Patheology*, *Tom.* 1. *fol.* 439. adviſes not to do as *ſome Surgeons*, who every Minute are opening the *Wounds* of thoſe who are under their Care; for, ſays he, by *too often* taking off the Dreſſings we hinder their re-uniting, and give Occaſion to the Air to inſinuate it ſelf into the Wound, and

and to coagulate the nutritious Juice. This indeed is a moſt juſt and reaſonable Thought. I remember, when I was at *Rome*, in the Year 1678. I chanced to ſee a little Book, written in *Italian* by the chief Surgeon of the *Hoſpital of the Holy Ghoſt*, whoſe Name I have forgot: He therein diſcourſed of *Wounds of the Head* only, and proved, by very *good Reaſons*, that they ought to be dreſt only once in three or four Days, and ſometimes not ſo often. Moreover, in Dreſſing he did not altogether lay open the *Wound*, but kept always upon it ſome thin Covering; as is done at this Day in many Places in dreſſing Burns, *&c.*

In fine, he took ſuch great Care to hinder the Air from paſſing into and injuring the *Wounds* which he dreſſed, that we may be aſſured he judged it a great Impediment to their Cure: Which was alſo his Opinion of frequent Dreſſing. In the ſame Book he adduced many Examples, among which were ſeveral Accounts of very conſiderable Cures accompliſhed by this Method.

It were much to be deſired, that every one, without regarding the publick Cenſure they might incur, had the ſame Charity to reveal the *Knowledge* they have attained by their Care and Experience; for 'tis very probable that by the Univerſality of Mankind, almoſt an Univerſality of Knowledge is poſſeſſed.

One

One has a Genius for one thing, and the next hath a Genius for another, and each their different Endowments: So that in civil Life, and particularly in an Art ſo neceſſary for the Preſervation of Mankind, every one *ought* to communicate without any Reſerve.

After all, there is no Rule without ſome Exception; and I freely own, that there are certain Caſes wherein Tents ought ſometimes to be uſed; as in *Wounds of the Breaſt*, and in an *Empyema*, when we would hinder the total Evacuation of the *Blood* or *Matter*, to preſerve the Strength of the Patient: or, in fine, on ſome other Occaſions, where they may be judged abſolutely neceſſary.

There are other *Wounds* to which Dilaters are neceſſarily required; as when the *Bones* being rotten or ulcered, we wait for their Exfoliation; or when they muſt be kept open, in order to ſome further *Operation* to be performed upon them.

There are alſo other *Wounds*, to which of neceſſity we muſt occaſion ſome Pain, whether by drawing forth *extraneous Bodies*, or by ſetting *broken Bones*, or by dilating their Orifice.

Others there are that will take up ſome Time in Dreſſing; as thoſe of the *Head*, where we often ſuſpect there may be a *Fracture*

ture of the Scull; alſo when the Scull is broken, when ſome *Operation* is to be performed upon the *Bones*, in complicated *Fractures*, and when *extraneous Bodies* are to be drawn out; in ſuch Caſes we can't dreſs ſo quickly as were to be wiſhed.

To conclude; There are *ſome* that muſt be *often looked to*, as when, notwithſtanding our Care, the Suppuration is great; alſo in Abſceſſes that are cavernous and deep, in very hot Seaſons, and in Patients of an ill *Diſpoſition of Body*, who abound in excrementitious Moiſture; or when Phlegmons, Eryſipela's, Lividity, Gangrenes, or any other unexpected Accident enſue upon a *Wound:* For it is the Part of a prudent and skilful *Surgeon* to accommodate himſelf to emergent Occaſions, and to correct the *Symptoms* as they fall out.

CHAP. XII.

A Diſcourſe upon diſcovered Bones; *with the way to prevent* Exfoliation.

IT is almoſt an univerſal Cuſtom (at leaſt I have ſeen it put in Practice wherever I've been) juſt as a *Bone* is uncovered, to widen the *Wound* by Tents and Dilaters, and wait its *Exfoliation*. This is ſo ſuperſtitiouſly obſerved in many of the King's Hoſpitals, that it

it would be judged a very heinous Offence to do otherwiſe; yea, or to neglect what hath been delivered by the Ancients; as if we were eternally obliged blindly *to follow* their Dictates.

Experience has taught me, on many Occaſions, that nothing is more required to prevent the ſpoiling a *Bone*, when only uncovered, but to defend it from the Acceſs of the Air: For this Intent we ought to endeavour the *cloſing* the *Wound* with all poſſible Speed, by proper Bandages and balſamick Remedies, without *dilating* it by Tents and Doſſils; thus the *Bone* will quickly be covered, and the *Exfoliation* thereof avoided, which will infallibly enſue if time be given the Air to exert its pernicious Efficacy on it.

Many *Authors* have enjoined Stitching in ſuch a Caſe. *Hippocrates*, and ſeveral after him, have approved thereof in *Wounds of the Head*; which nevertheleſs may be united without it, unleſs they are large and tranſverſe, and of the lower Parts, where Stitching oftentimes becomes neceſſary, by reaſon of the Figure of the Scull.

If any conſiderable Portion of the Bone is become bare by looſing the covering Subſtance, the Wound being large, 'twill take up a long time before 'tis cloſed up: In this Caſe all our Care will not be able to hinder the Alteration and rotting of the Bone, either by the Air admitted

mitted in the numerous Dreſſings, or by the *Matter* running along, or ſtaying upon the *Bone*. To prevent therefore this Inconvenience, we muſt in the firſt Dreſſing pierce the *Bone* as nimbly as poſſible, in many Places, with the Pyramid or Pike of the Trepan, by this means a way is opened to a *marrowy Juice*, which thickening upon it, covers the Bone in a little time, without ſuffering it to loſe any of its Subſtance.

It is well known to *Surgeons*, that any conſiderable Portion of the Scull, laid bare by a *Wound*, can never again be covered with Fleſh without the Aſſiſtance of Art, becauſe of the ſmoothneſs and glibneſs of its Surface: Upon this *Conſideration* it was that many of the Ancients thought fit to raſp it, that it might become rough and unequal, and likewiſe to make way for the Orifices of the little Veſſels, with which its inward Subſtance abounds, to ſupply it with *Blood* neceſſary to breed new Fleſh, whereby it may be covered.

But the *Operation* which I have made upon it, on many Occaſions, and which I here propoſe, appears to me to be more ſpeedy, ſafe and profitable than *Raſping*, wherein the Inſtrument paſſing to and fro many times o the whole Surface of the *diſcovered Bon* heats it, and alters it much more than the Pi of the Trepan, which only ſlightly touches at certain Diſtances, and yet pierces ſo fa

as to approach the middle Pith; from which we muſt fetch the required Aſſiſtance. Moreover the *Raſp* leſſens much the Thickneſs of the Bone; whereby thoſe that have undergone that Operation, are ſubject to Pains in the Head: Add to this, that it alſo leaves after it an unſeemly Scar.

This *Operation* may be uſed, when the firſt, yea, or both Tables of the Scull are broken; provided no inequality be left on the inward Surface thereof that may occaſion Accidents, which will appear in a ſmall time: for if we delay to procure a Covering to the Bone, the muſt ſubtil Part of the Matter may ſlide into the Fracture, and there cauſe ſome Alteration, or Inflammation, (for, according to *Galen* and *Celſus*, the Bone is liable to this Inconvenience) and even yet more troubleſome Accidents. Now, ſince the firſt Operation of this Nature which I performed was of the Scull, I ſhall begin to juſtify this Practice, by ſhewing how it is nouriſhed.

The Scull, according to the Opinion of many, has its Nouriſhment from three different Sources: Firſt, by Veſſels proceeding from thoſe of the *Dura Mater*, and paſſing into the *Cranium*, through its internal Surface, or that which is neareſt the Brain: Secondly, from the *Diploe* or middle Pith a medullary Juice is imparted to both Tables, whereby they are nouriſhed and ſuſtained: And thirdly, by its

external Part, it receives Nouriſhment from the *Pericranium*, wherewith it is every where covered and defended.

When therefore by ſome external Violence the Bone is deprived of the *Pericranium*, and remains uncovered; 'tis certain that the Air by its acid and nitrous Points, takes hold on its outward Surface; and in a little time alters and rots it, and then it muſt needs exfoliate, becauſe it is bereft both of its Nouriſhment and Defence.

It becomes neceſſary then to make an Amends, and to draw Nouriſhment from the neighbouring Parts inſtead of that which is loſt, that at the ſame time by covering it anew, it may ſhelter it from external Injuries. Now this we can have from no nearer Place than the *Diploe*; but in order to that, we muſt give it an eaſy Paſſage, and open to it a way to fulfil at once the *Intention* of *Nature*, and that of the *Surgeon*. This is accompliſhed by piercing the Bone, as we have ſaid, whereby the *Diploe* ſends forth at theſe little Holes the moſt ſubtle Part of *marrowy Juice*; which congealing upon the Bone, in three, four or five Days, ſometimes ſooner, ſometimes later, entirely covers it.

Other Bones that have Marrow, are nouriſhed from within, by the Veſſels of the Membrane which covers the Marrow; and from without, by the *Perioſteum*, or Membrane where-

wherewith they were inveſted: For this Reaſon we may perform this *Operation*, when there is occaſion, on the Bones of the *Shoulder*, *Thigh*, and *Leg*; and thoſe who doubt of this, may be convinced by a Trial.

That which ought to recommend this *Method*, and procure it an eaſy Reception, is, that thereby the Cure is accompliſhed in twelve or fifteen Days, or ſo; whereas otherwiſe it will take up near ſixty; for about forty Days are required to the Exfoliation of the Bone, and twenty more to fill up and cicatrize the Ulcer. Our way is ſo exceedingly advantagious to the Wounded, that it ought not to be rejected; nor can it, without departing from that Charity we owe our afflicted Neighbour, who by Delay in ſuch Caſes is extremely endangered, eſpecially in an *Hoſpital*, where the corrupt and infected *Air* ruins in time the ſtrongeſt Conſtitutions. I have often ſeen, and it is but too ordinary, that the wounded Perſons being cured, and juſt ready to go from the *Hoſpital*, have been ſuddenly ſeized by *malignant Fevers*, *Looſeneſſes*, *Bloody Fluxes*, &c occaſioned by their tedious Stay in ſuch diſmal Places, and *Death* often has been the firſt thing that delivered them from all their Miſeries. Therefore we ought to endeavour a ſpeedy Cure, and to ſpare no Pains to prevent that tedious *Exfoliation*. But if the Wounded are ſent to us with the Bone altered,

or if we can't avoid this Accident with all our Care, we muſt endeavour to help on the Separation with all Speed; for as a *Gangrene* in fleſhy Parts wants the Aſſiſtance of Art to put a ſtop to it, ſo does Rottenneſs, which is a *Gangrene* of the Bone; wherefore Exfoliation muſt be haſtened by external Remedies, that it may go no further; for ſometimes it extends from one End of the Bone to the other.

It is the *Surgeon*'s Province to pick out ſuch Remedies as are proper for this Intention. The Ancients and Moderns have left us good ſtore of this kind; but above all, we muſt avoid the Uſe of acid Spirits, which encreaſe the Rottenneſs, and have the ſame Effect on a Bone, as *Aqua fortis* on Iron. The actual Cautery is a great Help on theſe Occaſions, as alſo *Euphorbium* infuſed in Spirit of Wine.

The Rules I have propoſed to prevent Exfoliation are inconſiſtent with the Opinion of many *Italian Surgeons*, who maintain, that the Bone, ſo far as it hath been touched by the *Air*, will infallibly exfoliate. I have heretofore had great Debates on this Subject with ſome People, who through a Stiffneſs of Opinion, without any Ground, would neither yield to *Reaſon*, nor *Experience*, not being able to bear what was contrary to their own Principles and Practice.

CHAP

CHAP. XIII.

How to dreſs with a new Inſtrument, *in caſes where the Trepan is uſed, and other Diſorders of that Nature.*

WOUNDS of the *Head*, accompanied with a Fracture of the Scull, are ſuch as require an expert *Surgeon*: I am convinced, and I ſuppoſe none will deny it, that the *Air* is hurtful to them: In this both Ancients and Moderns are agreed.

Nevertheleſs, 'tis certain, that a great Part of the Accidents that follow upon them, proceeds only from the little Care that is taken to hinder the Acceſs of the Air into the Wounds, whether the Scull be only bared, or broken, or alſo trepanned. I have diſcourſed of diſcovered Bones in the foregoing Chapter, and have now only two or three Words more to ſpeak of ſuch Wounds, where the Scull has loſt ſome of its Subſtance.

When the *Dura Mater* is uncovered, I prepare a Plate of Lead very thin, and very ſmooth, pierced into Holes in ſeveral Places, without any Inequality, cut and fitted to the Bigneſs of the Opening; and to make it more exact, I ſketch it out with the Crown of the Trepan, that I have uſed, or am to uſe in this Operation: Or its Meaſure may be taken from

the Piece of the Scull cut out by the Trepan. On each Side of the Plate is left a little Ear, ſomewhat longer than the Thickneſs of the Scull; theſe little Ears I bend both one way, ſo as they may be perpendicular to the *Plate*; and ſo much of them as exceeds the Thickneſs of the Scull, I bend outwards again, that thereby they may reſt upon the Scull, and by which, as by two little Handles, I may lift them up with Pincers, if need be, at each Dreſſing; theſe two little Handles may be cut ſomething broader than the two Pieces that join them to the Plate, which muſt be of an equal Breadth. When I uſe it, I dip it in ſome proper Medicine pretty warm, and apply upon it a very ſoft Pledgit of fine Lint.

I have found very much Good by this Method, and have obſerved a five-fold Advantage in the Uſe of this *Plate*. Firſt, the *Matter* or *Blood* contained within the Scull paſſes out at the Holes of the Plate, and is imbibed by the ſoft Lint that I put over it: And if it has acquired any miſchievous Quality by ſtaying there which often falls out, the Lint by which it is ſoaked up, detains it from touching the *Dura Mater*, and imparting the Contagion thereto; and conſequently, there is leſs Hazard of its Alteration.

In the ſecond Place, this Plate, by lightly preſſing upon the *Dura Mater*, facilitates the coming out of the *Matter* or *Blood* extravaſated under the Scull. Thirdly,

Thirdly, It hinders the Breeding of a *Fungus*, and the Bunching out of the *Dura Mater* beyond the Scull, which otherwise often comes to pass, obliging us either to cut off, or consume with Cathartick's, that which so stands out; whereupon very grievous Accidents sometimes ensue.

A fourth Advantage is, That it hinders by its slight Pressure the *Dura Mater* in its continual Motion to strike against the Inequalities and pointed Parts of the Scull, that remain after a Piece has been raised by the Operation of the Trepan, or entirely separated by some external Violence.

And finally, it protects the Brain and its Membranes from the Assaults of the Air, performing in some Sort the Part of that Piece of the Scull that was taken away.

When we are assured that there is, or are in doubt that there may be, some coagulated Blood under the Scull, we may for some time omit the Use of the Plate, that we may leave it a free Passage, afterwards we may use it, the Danger of the Accidents being over, and then leave off, lest it hinder the Re-union and Generation of the *Callus*.

When the Operation of the Trepan is performed on the Basis of the Scull, as is usual to be done without Scruple, the Bunching out of the *Dura Mater* is more to be feared, and so this Plate is absolutely necessary to support it,

and keep it in: But for the Operation on this Place, as well as for that on others, we muſt endeavour, as far as the Caſe will bear, to chuſe the higheſt Part, that the Plate may have the leſs Weight to ſuſtain. We may ſafely uſe it for fourteen or fifteen Days, if we judge it needful, and it may be made of Gold, Silver, *&c.* according to the Deſire and Ability of the Patient; but for myſelf, I always uſe a leaden one, for every body knows this Metal is friendly to Nature, and is vulnerary and drying.

Tho' there were no other Advantage reaped from the Uſe of this Plate, but only that it defends the Brain and its Membranes from the Inſults of the Air, this were enough to recommend it to our Eſteem. 'Tis certain that the Air acts not with that Force when its acid Parts find a Hindrance, or when they muſt paſs thro' ſuch little Holes as thoſe of this Inſtrument, and ſometimes I don't lift it up but in two or three Days, when it purges freely, and the Accidents abate.

M. *Verduc* affirms, that the *Fungus* which breeds on the *Dura Mater* is cauſed by the Attacks of the Air. In a Word, all the Ancients and Moderns agree in this, that the Air is a pernicious Enemy to the Membranes and Brain.

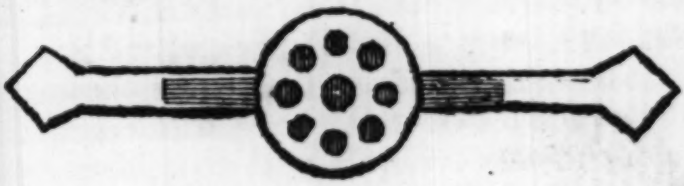
It is not then without Cauſe that *Nature*, as a good and provident Mother, hath taken Care to encompaſs the Brain with two *Membranes*, the *Scull*, the *Pericranium*, the *Teguments* and the *Hair* on every Side, to cover it from the Impreſſion

preſſions of the Air, which of all the Elements is moſt hurtful to it; and the moſt Part of thoſe that have been trepanned, or by a Fracture of the Scull have loſt ſome part of its Subſtance, without having the *Brain* or its *Membranes* hurt, are ſubject to a great many very troubleſome Accidents.

The reaſon of this may be eaſily conceived, for (at certain Seaſons, and in certain Conſtitutions, in which the Skin is more relaxated) the Air being endowed with more piercing and ſubtil Parts, finds nothing ſufficient to ſtop its courſe, and paſſes, notwithſtanding the *Callus*, which is never ſo ſolid as a Bone, and ſtriking upon the Membranes, which are extreamly ſenſible of Cold, occaſions thoſe Pains that ſuch kind of People are ſubject to.

That the Deſcription of this Plate may be the better underſtood, we have here ſubjoined its Figure.

The Figure of a Plate with nine Holes, to be uſed when the Crown of the Trepan is large.



A little Plate with five Holes.

The Figure of a Plate ready for Uſe, with the little Ears bent.

THE

THE Hoſpital-Surgeon:

PART II.

Further evincing the Excellency of the Way here propoſed, by a faithful and particular Account of Wounds of all kinds, *and in* all Parts of the Body, *thereby brought to a quick and happy Cure. Together with uſeful and practical* Reflections.

CHAP. I.

The Reaſons of writing this Second Part, with a general Propoſal of what it contains.

THO' *ſound Reaſon*, ſupported by *Authority*, may appear to be a *Proof* of the Goodneſs of any thing that's convincing enough to ſuſtain the Weight of what Conſequences might thence be deduced, yet does there oftentimes ſtill remain an Uneaſineſs and Heſitation in the Mind, no otherwiſe to be removed but by *Ocular Demonſtration*, as 'twere, and *Experience*; for nothing ſo infallibly ſhews the Poſſibility of Things, as their having already come to paſs; nor can any thing ſo well aſſure us what will follow upon them, as a multitude of Trials. 'Tis this Conſideration that induced me, in this Second Part, to give a Hiſtory of ſome *Wounds* handled according to my

Method, that juſtify my manner of *Practice*. Had I thought it requiſite, I could have filled a great Volume with Cures that I have done theſe ten or twelve Years, and which were all brought to a happy Concluſion, and compleated in a very ſmall time; but, to avoid tediouſneſs, I reſolved to ſet down as few as poſſible, to relate only one of each Sort, and each Part, and had once deſigned, tho' I ſince found my ſelf neceſſitated to exhibit many; of which, tho' ſome at firſt may appear altogether alike, yet if they be more narrowly ſcanned, they will be found to differ from each other in ſome very material Circumſtances.

As for the Order obſerved in theſe Relations, I have followed that of the Dignity of the Parts, beginning at the *Head*, and ending with the *Limbs*, not minding the Series of Time wherein they happened. I have deſcribed all things juſt as they were, without either adding or diminiſhing, having no other Deſign, but to make the Eaſineſs and Expedition of this Method appear, by the Examples I here relate.

CHAP. II.

Of the Head.

Obſ. 1. AFTER the War broke out in *Savoy*, there was brought to the King's Hoſpital at *Lucerne*, where I was then Surgeon-Major,

Major, in *July* 1690. a Soldier called *La Grandeur*, of the Regiment of *Poudeux*, which is now that of *Gatinois*, who had received a Wound on the right Side of his Head with a pretty large Bullet, which grazing upon the moſt convex Part of the Bone of the *Sinciput*, had only carried away the common *Tegument*s, not hurting the *Scull*; but the *Membrane* that inveſts it was ſo bruiſed, that it appeared livid. I know, if time had been given, it would have come to Suppuration, whereupon the Alteration and Exfoliation of the Bone muſt needs have enſued; to prevent which, I tore off with my Nails the *Pericranium*, ſo far as it was bruiſed, which was ſomething more than the bigneſs of a Shilling; and forthwith I ſtruck the uncovered Bone in ſeveral Places as nimbly as I could, with the Pyramid of the Trepan, and then covered it with ſome Lint wet with Spirit of Wine. The reſt of the Dreſſing was charged with a ſimple Digeſtive, upon which I put *Emplaſtrum de Betonica*, and above all the Cap.

After two Days I took off the Dreſſings, and found the Bone covered with a lively red, from whence I conjectured, that it would ſoon be covered with Fleſh. Two Days after this it was dreſt in like manner, as before, and then the Bone was half covered over, upon which I let it alone for three Days more; ſo that in ſeven Days time the Bone was quite hid with new Fleſh,

Fleſh, which was inſtead of a *Membrane* to it; and now nothing more was required, but by dreſſing it every other Day, to attend the Fall of the *Eſchar*. Finally, in the ſpace of eighteen Days, the Wound was filled up, and compleatly cured.

Reflection. If this Wound had been managed after the ordinary Method, I leave it to Conſideration, whether the Cure would have been ſo ſpeedily accompliſhed. From that time forward I ever kept to this Method, which I have uſed on many Occaſions, and never found the Wounds opened again, or that Exfoliation, or any other evil Accident enſued.

This and the following Example I judged ſufficient to eſtabliſh our Way of Dreſſing. And indeed, ſeeing it has been attended with Succeſs in ſuch Caſes, we ought to remain aſſured that it will prove no leſs effectual in *Inciſion Wounds*, and others alſo where the Bone is laid bare, whether by that which inflicts them, or by the Suppuration of the *Pericranium*. But we muſt obſerve, if the *Pericranium* is bruiſed or diſcoloured, as in the preceding Caſe, and *Suppuration* appears unavoidable, the ſecureſt Way is to tear it off, and ſpeedily uncover the Bone, that the aforeſaid *Operation* may take place; for by this means the *Corruption of the Bone* will be prevented, which might be occaſioned by the lodging of the corrupt Matter thereon, and then the Operation would be too late.

CHAP. III.

Of the Head.

*Obſ.*2. A Certain Soldier, named *Chateau-Montagny*, of *Aligny*'s Company in *Villars*'s Regiment, together with a Companion of his in the ſame Company, was, during the Campaign in the Year 1694. brought to the Hoſpital eſtabliſhed for the King's Army at *Briançon*. The firſt had received a Cut on the middle of the *Os Sincipitis* of the left Side, by which the Bone was uncovered the bigneſs of a Crown-piece. At the ſecond Dreſſing I made eight or ten little Holes with the Piercer upon the diſcovered Bone, not reaching ſo deep as the middle Pith or *Diploe*, that ſo I might try if I could accompliſh my Deſign without piercing thro' the firſt Table. I applied upon the Bone ſo far as it was laid bare, Lint dipt in *Spir. Vin.* dreſſing the reſt of the *Wound* with the ſimple Digeſtives, *Emplaſtr. de Betonica*, and the Kerchief.

I ſtaid two Days before I dreſt it again, and then found my Operation had not been without Effect; the Bone was made reddiſh, and the Holes made by the Piercer (to which this Effect was owing) began as it were to ſprout forth; which made me conclude, that *Nature* would accompliſh the Work ſhe had already begun.

begun. For the firſt eight Days he was dreſt but four times, after which the Bone was all covered; and in eight or ten Days more, wherein he was dreſſed but every third Day, the *Wound* was filled up, and a good and firm *Cicatrix* formed. He came into the Hoſpital on the 25th of *May*, and upon the 11th of *June* he went out perfectly cured; all that were in it being Witneſſes of the Operation, and the Speedineſs of the Cure.

His Companion had ſeveral Cuts all over his Head, which he had received on the ſame Occaſion, but eſpecially a deep one upon the upper and middle Part of the *Forehead Bone*. Finding that in none of them the Scull was fractured, I judged it ſufficient to join together their Lips; only in the laſt, during the firſt Days, I left two ſmall Threads of Lint dipt in Spirit of Wine, with the Ends hanging a little out of the Wounds. Four Days after, I cauſed to be removed whatever might hinder the re-uniting of the Lips, dreſſing only once in three Days, becauſe no Accident appeared.

The Suppuration in this laſt Wound was but very inconſiderable; and no Bones came away, neither was there any Exfoliation: So that this Man was likewiſe cured, and returned unto the Regiment with his Companion.

Reflect. Had I only recounted one *Cure* of this nature, done in a Place at a great Diſtance

ſtance from *Paris*, the Truth whereof might readily enough have been called in Queſtion; but theſe, with many others of the like kind, having been publickly performed in an *Hoſpital*, to which every one had free Acceſs, and as it were in view of the *World*, ought not only to remove all Scruple as to the Truth of the Matter of Fact, but alſo to eſtabliſh the Reputation of a *Method* attended with Expedition and Security. The Excellency and Uſefulneſs of the little *Operation* performed upon the uncovered Scull may be eaſily made apparent to every one, being founded on *Reaſon* and *Experience*. But beſides, M. *Jouve*, a very expert Phyſician belonging to this *Hoſpital*, was an Eye-witneſs of the happy Succeſs of my late *Cures*, he having been preſent from the Beginning to the End.

I ſhould but weary my Reader, and myſelf alſo, if I ſhould go about to reckon up the number of thoſe, who in three Years time have in this *Hoſpital* been cured with ſurpriſing Expedition of Wounds of the Head; as well ſuch upon whom the *Scull* was cut more or leſs, as thoſe who had loſt of its Subſtance.

I am not the only Perſon, that has conquered the Scruples commonly enough entertained about Wounds of the Head. *Ambroſius Pareus* reports, that he cured in a ſmall time a certain Perſon, that with an edged Inſtrument had a large Piece of the *Forehead-bone* entirely

entirely ſeparated, and hung over upon the Face by the Skin only, which yet was eaſily enough re-united.

In the *Scull*, as in other *Bones* of the *Body*, when a Piece is ſeparated, whether by a Cut or Fracture, ſo as yet to adhere to the encompaſſing Membrane, it is ſufficient artfully to reſtore it to its natural Place, in ſuch a manner, that it may have the ſame Situation and Diſpoſition as formerly, that ſo the Pores may anſwer, and the *nutritious Juice* neceſſary to form the re-uniting *Callus*, may be freely admitted; which could not be done without extream Difficulty, if it were placed either too high, too low, or aſide; in which Caſes, the natural Order and Situation of the Part being altered, it is impoſſible it can fit ſo cloſe to the *Bone* from whence it was divided but that many little Diſtances muſt intervene, that are liable to be filled with *Lympha*, *Blood*, or *Matter*, or altogether. Now this alters the wounded Part, corrupts its Aliment, and brings to Suppuration, that Membrane by which only the divided Part was tyed: So that Nature muſt then of neceſſity throw it off as an *extraneous Body*.

From hence we may readily conclude, that it is not at all neceſſary to permit *Wounds* of this kind to come to *Suppuration*, or keep 'em open in Expectation of the coming away of *Bones*, which may be avoided without danger.

This

This our *Method* is alſo confirmed by the Authority of *Rhaſis* and *Serapion*, Authors celebrated by Antiquity; who treating of *Wounds of the Head* accompanied with a Fracture of the *Scull*, tell us, that it was their Cuſtom to ſtitch them, even when the Fracture paſſed through both Tables. M. *Verduc* alſo in his firſt Volume, *Chap.* 18. *Of Wounds in the Head*, makes mention of a Fracture of one of the *Oſſa Sincipitis*, that reached from the *Sagittal* to the *lambdoidal Suture*, which was cured without having recourſe to *Operation*.

The *Diploe* or middle *Pith*, plentifully ſupplies the *Scull* with *nutritious Juice*; from whence it is, that when the Scull is broken 'tis more eaſily united, than any of the other *Bones*, tho' indeed its *Callus* is leſs firm; and provided the *Brain* with its Membranes are ſafe, we need not fear any danger from the Fractures of the ſurrounding *Bone*: But tho' this indemnity of the Brain and its Membranes may ſometimes fall out; yet it is ſcarce to be expected, but that the violence that occaſions a Fracture in the Scull, ſhould by the ſudden Jolt or Conculſion produce ſome Diſorder in ſuch a ſoft glandulous *Body* as is the Brain. Great Carefulneſs therefore and Attention is here required. For a *Rupture* or *Dilatation* of their Orifices and Anaſtomoſes of the Veſſels that are frequent enough in ſuch Caſes, and cauſe Effuſion of *Blood*, does not appear at firſt; as

I have

I have oftentimes obſerved; but ſo ſoon as the Accidents begin to ſhew themſelves, Operation muſt not be neglected.

It will poſſibly be objected to what I have ſaid concerning carefully placing the broken piece of *Bone* in the ſame Situation it had formerly, that the Bones of other Parts of the *Body* may be re-united by Means of a *Callus*, even when ſo ill placed that there is a neceſſity of breaking them a-new, in order to reſtore them to their natural Figure. But the Anſwer is eaſy; for there is a difference between the Caſe we here treat of, wherein a Piece or Splinter of a *Bone* is ſeparated from the whole, and that now alledged, where the nutritious Juice that comes from the one as well as the other Part, meets, diffuſes itſelf, coagulates about the Fracture, and ſo forms that which we term a *Callus*: For in our Caſe, the alimentary Liquor proceeds, and is communicated from one of the Parts only; and if it find no Pores rightly diſpoſed to receive it, there being nothing to which it can join itſelf, it is altered and corrupted; and the looſened Piece ſhares with it in the ſame Fate.

As for the Operation of *Trepanning*, which I have often performed, conſidering that nothing extraordinary hath therein occurred, I will paſs it over in Silence.

CHAP.

CHAP. IV.

Of the Head.

Obſ. 3. ABOUT the Concluſion of the Year 1689, a little before the War of *Savoy*, the *Vaudois* cut off almoſt all the Inhabitants of *Pramol*, which depends on the Valley of St. *Martin*. I was at that time Surgeon-Major to the *Hoſpital* of the Army of his Royal Highneſs the *Duke of Savoy*: Thither were brought a great number of Men, Women, Maids and Children, in a moſt deplorable Condition; and among others, a *young Girl* about 9 or 10 Years of Age, who, beſides others in the Body and Arms, had received 18 or 19 Blows on the *Head* with a Cutlaſs, each whereof had pierced the *Scull*, ſome even to the *Dura Mater*; ſome Pieces of the *firſt Table* were carried away, and ſome of *both Tables* entirely ſeparated.

I cauſed, in the firſt place, ſuch Parts to be ſhaved as would bear it, and afterwards I gently rubbed the whole Head with a Liniment made of *Unguentum de Betonica*, the Yolk of an Egg, and Spirit of Wine, mix'd together: In this Mixture I likewiſe dipt large Pledgits, with which I cover'd all the Head, without either *Tents* or *Dilaters*; above theſe I put *Emplaſtrum de Betonica*, and over all the ordinary

What her Age and Strength would allow, was done for diverting the Humours; and the first Dressings were left untouch'd for 2 Days; which *Method* was continued for 15 Days: When we took off the Plaister, almost at every Dressing, we found Pieces of Bones sticking to the Pledgits: What was altogether separated, came away with Ease: And in fine, such Bones as yet adhered to the *Pericranium* were re-united, and what was wanting in the *Cranium* was speedily supplied. When I perceived the Suppuration to diminish, I dressed but once in three Days. This Course I found so successful, that in the space of about five Weeks the *Cure* was perfectly accomplished. This poor wounded *Girl* was known to almost all *Pigneral*, being very remarkable by the loss of one of her *Ears*, which she had sustained on this afflicting Occasion.

Reflect. This Cure is altogether to be ascribed to *Nature*, as being entirely her Work; and had not great Circumspection been used, in prohibiting the Access of the Air in this case, where the very Membranes of the Brain in several Places were discovered, it could not have had so speedy, easy, and successful an Issue, especially had it been managed in the ordinary way: For besides, that the Cure would have been unsufferably tedious, a thousand dangerous Accidents might have happen'd, especially

in an Hospital, where long-winded Cures are seldom attended with Success. In fine, notwithstanding the Novelty that may be charged upon this Method, it is supported by the Authority of *Hippocrates*, who, *Lib.* 5. *Aphor.* 17. affirms, That the *Air* is an Enemy to the Brain, the Bones, the Nerves, and to our Nature in general. *Galen*, in his Book *de Usu Partium*, *Ch.* 1. says, That the Air is prejudicial to *Ulcers*; by which Word he means all Sores; and adds, that in trepanning we ought to take special Care not to cool the Brain, as well during the Operation as when it is over.

The Access of the Air is not only hurtful to the Wounds of the Scull and Brain, but also to those of the other Parts of the Body: And tho' in these the Accidents are neither so sudden nor so violent, yet they ought to be regarded with all necessary Care; for if you ever so little neglect the Conservation of the natural Heat and Spirits, the wounded Member must needs fail, and frequently the Patient himself shares in the same Destiny.

CHAP. V.

Of the Face.

Obs. 4. IN the Year 1689, I being in the same Post, and at the Place before mention'd, when the *Vaudois* were driven from the

the Valleys of *Lucerne*, a certain Officer, whoſe Name Civility obliges me to conceal, was wounded with a broken Sword in the left Cheek, towards the Corner of the nether Jaw, about an Inch below the Ear, and the *Ductus Salivales* were torn. He was at firſt dreſt by a Surgeon, who (according to his uſual manner) dilated the Wound, by thruſting into it as much Lint as it could contain. A conſiderable time paſſed without any Appearance of a Cure, and by little and little it became fiſtulous. I was called by the wounded Perſon to give him my Advice and Aſſiſtance; and forthwith I conſumed the Calloſity, by touching it lightly with Tents dipt in diſſolved Cauſticks. I cauſed him to be fed with Jelly-broth, to be taken with a Quill, that there might be no occaſion to move the lower Jaw, ordering him alſo to keep himſelf very quiet, without either ſpeaking or moving; and when all the Calloſity was taken off, I applied to the Wound the Balſam of *Peru*, and preſſing together the Lips with long ſlender Bolſters, I covered it with the ſtyptick Plaiſter of *Crollius*. Thus he was cured, not without difficulty, tho' at firſt it might have been done with great Eaſe.

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CHAP. VI.

Of the Face.

Obſ. 5. BEING in *Pignerol* in the Year 1691, the Chevalier *Vauban*, a Captain in the Regiment of *Beaujolois*, ſent for me to ſee his Brother, who was run with a Sword into the Cheek. The Wound had been dreſt by a Surgeon, who at firſt thruſt into it a Tent both thick and long, which paſſed into his Mouth; and continuing the ſame Method for ſix or ſeven Days, the Patient was thereby thrown into a violent Fever, and his Head and Face were exceedingly ſwelled, by reaſon of the great Flux of Humours.

After we had laid aſide the Tent, we found it neceſſary to have Recourſe to ſuch means as might divert the Humours; but the Accidents which ſo great an Irritation of the Parts had occaſioned could not eaſily be removed; nevertheleſs they were at length conquered, though not without Difficulty, and by means of Sarcoticks we completed the Cure; but an ugly Scar remained behind, occaſioned by the inconſiderate uſe of the Tent.

Reflect. The Face being the Image of God, and as it were an Abridgment of all the Beauties of Nature, which as a little World repre-

ſenting in Miniature what is more voluminouſly diſplayed in the great Bulk of the vaſtly extended Univerſe, ought doubtleſs to enjoy ſome Privilege over the other Parts of the Body; hence it is that all the Authors, both ancient and modern, though for the moſt Part they have allowed the Uſe of Tents in all other Wounds, yet they've unanimouſly condemned it in thoſe of this Part, which nevertheleſs have been cured with wonderful Facility, and by the Uſe of the very weakeſt Sarcoticks.

Fabricius ab Aquapendente, in Wounds of the Face recommends the Uſe of the dry Stitch, to avoid the Deformity of a Scar: And indeed, ſeeing we are to preſerve the Beauty of the Countenance as much as poſſible, they are to be accounted very unskilful Surgeons, and but ill inſtructed in what belongs to their Buſineſs, who employ Tents on ſuch Occaſions: The *Saliva* ſeems to be that Balſam which is peculiar to the Face, aſſigned thereto by Nature, which has alſo granted to all the other Parts one proper to them.

CHAP. VII.

Of the Tongue.

Obſ. 6 IN the Year 1689, a Lieutenant of the Militia of *Mondevis*, having his Mouth open, as he gave Orders to his Soldiers, in

in an Encounter, received a Bullet that broke and tore all his *Tongue* into five or ſix Pieces, which were not altogether ſeparated, but ſtuck together on the upper Part. He was carried to the *Hoſpital* of *Lucerne*, and dreſſed out of hand by M. *de la Ramée* Maſter Surgeon at *Turin*, and well skilled in his Buſineſs; but finding that with all his Care he was not able to ſtay the Flux of Blood, which was conſiderable, he deſired my Advice in this Affair.

Having ſearched his Mouth in order to diſcover from whence the Blood came, I found the Bullet lodged under one of the Corners of the lower Jaw-bone, having only fretted the Skin of that Part; and finding no other Place from whence the Blood could come, but from the Veins under the *Tongue*, called *Raninæ*, I propoſed to heat red-hot three of thoſe ſmall cauteriſing Irons that are uſed for the Teeth, and to apply them to the *Raninæ*; which being accordingly done, the Bleeding was ſtopt, and the wounded Perſon ſpeedily cured.

Reflect. The *Ancients* ordered to ſtitch the Wounds of the *Tongue*, unleſs the Pieces be altogether ſeparated, in which caſe Operation is to no Purpoſe, and the Re-union impoſſible: *Fabricius ab Aquapendente* is of the ſame Opinion: But as for myſelf, I can ſee no manner of Neceſſity for ſuch Stitching, for that *Nature* alone, when left in Repoſe to her ſelf, does

excellently accomplish the Uniting of the divided Parts without it. Every Body knows, that the *Tongue* is seated in the *Mouth* under the arched *Palate*, and made up of innumerable little nipple-like Bodies, encompassed on all Sides by the *Teeth*, and supported in such a manner that its Parts are kept together, and cannot fall asunder. The Spittle is its *Balsam*, and oftentimes the only Remedy necessary to cure its *Wounds*. This is what I have observed in the preceding *Cure*; for this Gentleman's *Tongue* was, after some small time, altogether so well, that scarce any Signs of the Division of its Substance could be discerned; but whereas it had been torn by the *Bullet*, and scorched with the *Cautery*, it must of necessity have lost of its Substance; nevertheless *Nature* found the way to make up what was wanting, and to effect a complete Union of the divided Parts: From whence I have Reason to conclude, that what the Ancients have left us in Writing is not always true.

I have dressed a great many Fractures of the lower Jaw-bone, but chiefly two Soldiers, who were wounded in that Part, at the Battle of *Marseille*, one of whom had more than half of the Bone broken to Pieces; notwithstanding which, both had been, and are at this time amongst the Invalids, being disabled and much deformed. Of these I will not speak more particularly, having observed nothing extraordinary in their Case.

CHAP.

CHAP. VIII.

Of the Neck.

Obſ. 7. IT would be both tedious, and unprofitable, here to relate Examples of *Wounds* in the *Neck*, of which I have cured a great Number in very little time, and that with *ſimple Remedies* only. I have likewiſe taken out *Bullets* ſeveral times, which had been lodged there for ſome time, yea, many Years. But I ſhall here content myſelf in giving my Thoughts of what I judge neceſſary to the ſpeedy Cure of the Wounds of this Part.

Reflect. All the *Ancients* agree in this, that Wounds of the *Neck*, though paſſing quite through, are eaſily enough cured, provided the great Veſſels and Spinal Marrow be not hurt: But they give no ſufficient *Reaſon* for their *Opinions*. I know not, if I have hit the Matter aright, but in my Opinion the Facility of the Cure proceeds from this, that the Uſe of *Tents* has been laid aſide, which in the Wounds of this Part cannot be employed, becauſe of the neceſſary Uſes of the *Wind-pipe* and *Gullet*, that would be hindred by ſo hard a Bandage as is required to keep in a *Tent*.

It is therefore, according to my Opinion, *Nature* herſelf, who being freed from Impe-

diments, ſpeedily heals up the Wounds of the *Neck:* and this gives a great Confirmation of the Reaſonableneſs of my *Method*; for thoſe who fear, leſt the Omiſſion of *Tents* ſhould bring on Abſceſſes, Bags, and Sinus's, have more Reaſon to apprehend ſuch Accidents in the *Wounds* of this, than in thoſe of any other Part.

'Tis well known, that this Part is obnoxious not only to the *Bronchocele*, Afflux of cold Humours, and Quinſy, but alſo to *Phlegmons*, St. *Anthony*'s Fire, and all other Indiſpoſitions in general that afflict the whole Body: For this Part, by reaſon of the Glands that here are very numerous, is always charged with abundance of Humours, which render it ſubject to all ſuch Diſorders as proceed from the Humours thrown out upon the Parts.

It muſt alſo be owned, that there is not any Part in all the Body which, in proportion to its Bigneſs, contains near ſo great a Number of *Blood-Veſſels* as are here to be found.

And in fine, if it were true that the Uſe of *Tents* would prevent Fluxions, Collections of Matter, Bags, and Sinus's, I know no other Place of the Body, that when wounded, would be in more need of them than the *Neck*, which is extremely ſubject to ſuch Accidents.

Wherefore, ſince Wounds of the *Neck*, which of all the Parts is moſt liable to dangerous Symptoms, may not only be cured without

out *Tents*, but even much more ſafely and ſpeedily than with them, we may conclude, that the Wounds of other Parts ought to be treated alſo with the ſame Gentleneſs, and ſet at Liberty from the Tyranny of *Tents*.

CHAP. IX.

Of the Breaſt.

Obſ. 8. BEING at *Pignerol* in the Month of *April*, 1692. M. *de Fontaniere*, Commander of the King's Battalion, received a Thruſt with a Sword, about two Inches above the Nipple of the right Breaſt, glancing towards the Arm-pit, which entered the Body between the third and fourth Rib.

He was dreſſed by one of the Surgeons in *Pignerol*, before which he had loſt, according to conjecture, about between ſeven and eight Pounds of Blood; and notwithſtanding the Dreſſings, the Flux of Blood did ſtill continue; for which Reaſon I was ſent for by the wounded Perſon and his Friends. I ſearched the Wound in preſence of him that had formerly dreſſed it, and took out of it between eight and nine Ounces of Blood: And leſt at firſt I ſhould appear ridiculous, I permitted it to be dreſſed with a *Tent*, and immediately after cauſed him to be let Blood, and adviſed his Friends to diſpoſe him to ſet his Affairs in Order. All

the Signs were dangerous; his *Pulſe* was *weak* and *convulſive*, he had *frequent Swoonings*, and *Pains* all over his Body. A Clyſter was given him, and ſome weak Cordials in good Broth. A little after the Bleeding, he was ſeized with a *Fever*: And all theſe Accidents concurring, made us queſtion whether he could out-live that Night; which yet he did with great Pains all over the Breaſt, and perpetual Reſtleſsneſs.

In the Morning, which ended the firſt Day of his *Wound*, we took off the Dreſſings; and found that it had bled all Night; and took between ſix and ſeven Ounces of Blood half corrupted out of the Wound, which we then dreſt, as the Day before. The *Clyſter* was repeated: We gave him *Aperatives* and *Vulneraries* in Syrup of Violets: And in his Broth a Diaphoretick made up of ſome Grains of *Vitriol calcined*, and the Powder of a *human Skull*, which gave no ſmall Relief, being a *Specifick* in ſuch ſort of Wounds.

After the Dreſſing, the Blood yet run from the Wound into the Bed; and as we were preparing to bleed him again, News was brought him, that he behoved to change his Lodgings, and to remove for his greater Security, to ſome Place at a conſiderable Diſtance from that where he was. On this Occaſion, his Removal threatned no leſs than Death: for this was but the Beginning of the ſecond Day of the *Wound*. I was willing to ſee it before his Departure, though it had been dreſſed

dreſſed but a little time before: But having perceived, at the laſt Dreſſing, that ſome *Blood* run from one of the Arteries that paſs along the lower part of each Rib, and having only out of Complaiſance continued the *Tent*, I deſigned then to uſe one of another ſort, there being now no time to loſe.

Accordingly, I prepared a ſoft *Tent*, indifferently thick, and blunt at the end, that it might reſt upon the Rib, without touching the *Pleura*, or paſſing into the Cavity of the Breaſt: This being dipt in a ſimple Digeſtive, and rolled in Vitriol finely pulverized, I applied with a broad Head, as is uſual, together with the reſt of the Dreſſings, and the Plaiſter of *Andreas à Cruce*. After having taken ſome Broth, he was put into a Chair and carried to his new Lodgings, where he might remain more conveniently: And by the way he only loſt a little Blood, tho' many were of Opinion, he could never have come alive to the end of it.

He reſted a little that Night; and in the Morning, which ended the ſecond Day, the *Fever* was ſtill pretty violent; the *Wound* was without Moiſture or Blood; the *Pleura* was re-united: He felt a Heavineſs, and breathed with ſome Difficulty. The Wound we dreſt now with a ſmall Dilater only, to which, for more Security, a long Thread was tied, applying the other things as before. I

bled him in the Arm; and encreaſing the Doſe of the Diuretick's with the Syrup of Maiden-hair, ordered an *Emulſion* to be taken at Night with two Grains of *Laudanum*.

All theſe things ſucceeded ſo well, that the next Day, which was the end of the third ſince he was wounded, I found the Fever diminiſhed: He breathed more freely; felt little or no Heavineſs; and in the Night-time had voided ſuch abundance of *Urine*, that we might reaſonably enough ſuppoſe this to have been a *critical Evacuation*; he had alſo ſpit ſtore of bloody Matter. The Wound being now in a very good Condition, from this time forward I dreſſed it with a Plaiſter only.

At Night I obſerved a Moiſture upon him; which made me believe, that *Nature* might accompliſh the reſt of her Work by *Sweat*. Wherefore, that I might not let ſlip ſo favourable an occaſion, and to aſſiſt Nature, I cauſed to be prepared for him a Potion with the diſtilled Water of *Carduus benedictus*, and of *Scabious*, four Grains of *Diaphoretick Antimony*, half a Dram of the *Confection of Hyacinth* and of *Alkermes*, a little of the *Powder of Hyacinth*, and 2 or 3 Drops of the *Spirit of Sal-armoniac*. This *Remedy* being given ſo ſeaſonably, procured a thorough *Sweat*; and in the Morning, which ended the fourth Day of the Wound, the *Fever* was gone, the weight upon the *Diaphragm* removed, and he breathed without difficulty:

And

And finally, all theſe Symptoms vaniſhing, the Wound was only dreſt with a Sarcotick Plaiſter, as if it had been a ſimple Excoriation.

The Day after, which was the fifth of his *Wound*, he mounted his Horſe without help, and went to *Diblon*, a more pure and temperate Air, where he no longer kept his Bed, and found not the leaſt Inconvenience thereby. There I purged him twice, which was done not out of any abſolute neceſſity, but as an expedient Precaution: I adviſed him alſo for a time to live ſomewhat moderately. Thus the *Wound* which appeared to us firſt *mortal*, and was attended with a numerous Train of *dangerous Symptoms*, was in five Days time compleatly cured, to the Amazement of all *Pignerol.*

Reflect. This Method of Practice will appear at firſt to be ridiculous and raſh, to thoſe who have not conſidered ſo much as I have done the ſurprizing Works of *Nature*, nor thoſe ſecret Paſſages ſhe finds out to diſcharge her ſelf of what is troubleſome to her in like Caſes, nor how in particular ſhe oftentimes effects a *Criſis* by the way of *Urine.*

But ſeeing Experience has frequently taught us, that an *Empyema* in the Breaſt has been carried off by means of *Diureticks*, the Matter, as the Ancients thought, paſſing to the Urinary Veſſels through the *Vena Azygos*, but much more probably through *Ways* to us yet unknown, why may not a little extra-

vaſated Blood contained in the Cavity of the Breaſt, or lying upon the *Diaphragm*, be diſcharged by the ſame Ways, or by thoſe of *Sweat*, eſpecially if Nature be therein aſſiſted by the uſe of *Diaphoreticks*?

By theſe Ways then, now mentioned, the Breaſt may be ſufficiently freed from Humours that oppreſs it; eſpecially in a young and vigorous Body: neither is there now a-days Place for any to doubt of this, ſince ſo many People in our Days have been Eye-witneſſes of it, who can yet teſtify the ſame.

There is therefore no Reaſon to be ſo obſtinately bent for uſing *Tents* in *Wounds* of the Breaſt, unleſs it be to carry *Aſtringents* to ſome Place, that otherwiſe they could not reach; or to ſupport and keep them on: But in all other Caſes they ought entirely to be laid aſide. For by exaſperating ſuch Parts as they touch, they are apt to renew the *Flux of Blood*; they hinder the cloſing up of the *Wound*; and by widening the *Diviſion* of the *Pleura*, occaſion *Inflammation* upon it.

In like manner when a *Tent* is ſomething long, it frequently falls out, that it touches the Lungs, and bruiſes them by reaſon of their continual motion and beating againſt its Points, yea, oftentimes it enters into, and divides their Subſtance, making its way thro' the inveſting Membrane, now brought to Suppuration. In *Wounds* alſo where the *Lungs* are not ſpoiled, there

there being only a ſimple Diviſion of their Subſtance with a ſharp Inſtrument, a *Tent* may encreaſe the Separation, and by irritating the Parts, cauſe a diſcharge of Humours thereupon, and great Suppurations, which end ordinarily in incurable *Fiſtula's*.

Moreover, a *Tent* preſſes upon the Muſcles of Reſpiration, and permits not the Patient either to cough, ſpit, or breathe freely: It hinders the Circulation of the Blood, by bearing upon the Veſſels; ſo that the wounded Perſon is in danger of Suffocation, by the Collection of *Blood*, *Matter* or *Phlegm*, and oftentimes of all three together, unleſs they are by ſome means diſcharged: Nay, even when there is not a ſufficient Quantity of one or all of theſe, to produce ſuch an Effect; and when the *Lungs* are yet at liberty to perform their wonted Motions, theſe Humours will there ferment and corrupt, and occaſion Putrefaction in the Parts that contain them.

But after all, this Accident may ſometimes have an happy Event; and a bad Cauſe may by chance produce a good Effect. For our Body, as we are informed by *Anatomy*, being nothing elſe but a Contexture of Veſſels, it may happen in Wounds of the Breaſt, that the Blood or Matter collected in the Subſtance of the *Lungs*, or upon the *Midriff*, may there undergo a Fermentation; by Vertue of which, together with the Heat and Moiſture of the Part,

Part, they may open and dilate the Pores of the Veins; and by this means the Humours being taken into and mixed with the Blood, rarify, ſubtiliſe, and diſpoſe it to throw off the *offending Matter*, either by Sweat, Urine, or other *Criſes* of the like Nature, according to the Diſpoſition of the Body.

And ſurely we need make no great difficulty to believe, that ſuch a thing might happen in a Wound of the Breaſt, if we will conſider what befel M. *de la Place*, a Captain in the Regiment of *Barrois*, who voided by Stool the Matter of a great *Abſceſs* in his *Arm*, occaſioned by a Wound he had received in that Part; of which we will give you a particular Account in the laſt Chapter of this Book; as alſo of another wounded in the laſt Campaign, from whom the Matter, that was contained within the Breaſt, was drawn away by opening the *Vena Mediana*, deſigning only to bleed.

In fine, we may ſay, tho' the Ways by which theſe *Criſes* were effected are not altogether known to us, yet it is very certain that there are ſuch: And ſince *Nature* is not ignorant of them, we ought to leave to her Conduct the Succeſs of a Work, whereof ſhe ought to have all the Honour, and which ſhe alone brings to paſs; our part being only to wait upon her, and aſſiſt her in her Deſign.

Galen in his *5th* Book *de Locis*, has obſerved, that *Matter* contained in the *Breaſt* is oftentimes

times carried off by *Urine*; the ſame he likewiſe affirms in his *6th Book, de Partium Morbis.*

Andreas à Cruce, a famous Phyſician of *Venice*, in the firſt Section of his *4th Book* of *Surgery*, in expreſs Terms forbids the uſe of *Tents* and Pipes in the Wounds of the Breaſt; he adviſes only to uſe a Plaiſter, the Advantage of which I have thoroughly experienced.

Fabricius ab Aquapendente, Part I. *Book* 2. Chap. 42. ſays, That he has often ſeen the *Matter* contained in the Breaſt in a Pleuriſy, or *Peripneumonia*, diſcharged by *Urine.* He relates an authentick Hiſtory of a *Wound* piercing into the Cavity of the Breaſt, which having been dreſſed as a ſimple Wound of the common Teguments, the Patient was on a ſudden ſurprized with ſuch Symptoms, as plainly diſcovered the Nature of the Wound. That he might be relieved with as much eaſe as poſſible, and not put to the torment of a Counter-opening, it was thought expedient to dilate the Wound; but it was ſo well cloſed up, that the *Operation* of the *Empyema* was reſolved on next Day. But during the Night, ſage *Nature* had accompliſhed her *Work*, a Glaſs full of *Blood* being voided by the Urinary Paſſages, whereby the ſpitting of *Blood*, difficulty of Breathing, and all the other Accidents were compleatly removed.

The ſame Author recommends on ſuch occaſions the uſe of ſtrong Diureticks, unleſs a Fever

Fever hinder it. And in the above-cited Chapter, he ſays, there are ſome who will not allow *Wounds of the Breaſt* to be kept open, but ſuffer them to cloſe, leſt otherwiſe the natural Heat might be diſperſed, and the cold Air ſhould enter in, and ſpoil the neighbouring Parts. He adds, that the uſe of *Tents* occaſions *Fiſtula's*.

Ambroſius Pareus, *Book* 10. Chap. 32. approves the Practice of thoſe who make uſe of Tents in *Wounds of the Breaſt*; and elſewhere commends ſuch as employ them not. So that, as to this Point, he ſeems to have been undetermined, and inconſiſtent with himſelf.

In the ſame Chapter he alſo ſpeaks of a Cure done by himſelf without Tents, and afterwards affirms, that the *Fiſtula's* which follow upon *Wounds of the Breaſt* are oftentimes occaſioned only by the uſe of Tents. The ſame Author, in the 51ſt Chapter of the 17th *Book* of his Treatiſe of *Purulent Matter and Blood that may be carried off by the Veins*, demonſtrates by many Reaſons, that ſuch an Evacuation may be; and ſhews, that *Galen* was of the ſame mind.

Hollerius, in his Commentaries, is of the ſame Opinion; and M. *Verduc*, Tom. 2. c. 28. affirms, that *Wounds of the Breaſt*, the more they are expoſed to the Air, are ſo much the more dangerous.

It would be a very tedious Task to recount all the Authors that have approved of this Method,

thod, altho' it is but little put in Practice: And it would be a very eaſy matter to bring many Examples of Cures wrought by Nature thro' ſecret and occult Paſſages conveying Humours and Matter into other Parts than what were at firſt affected.

CHAP. X.

Of the Breaſt.

Obſ. 9. ABOUT the end of the Year 1693, was brought to the King's Hoſpital at *Briançon* a Grenadier of the Regiment of *Touraine*, together with a Servant of M. *de Leſſeraine*, formerly Commiſſary at *Pignerol*. The firſt was run into the ſide-part of the Breaſt, between the third and fourth Ribs, with a Sword, which paſt into the Capacity of the *Thorax*, and pierced the Lungs. The uſual Symptoms appeared at firſt, and *Diverſions* were made. The firſt and ſecond Day ſome *Blood* came from the *Wound*, which was dreſſed only with the Plaiſter of *Andreas à Cruce*, without either Tent or Dilater; *Diureticks* and *Diaphoreticks* alſo were uſed, and upon the fourth Day he voided abundance of Urine, by which critical Evacuation he was freed from the *Fever*, *Difficulty of Breathing*, *Weight upon the Midriff*, and *Spitting of Blood*; and on the fourteenth Day he was compleatly cured.

The

The other had received juſt ſuch another Wound, piercing in like manner, only higher by one Rib. The *Symptoms* were ſo violent, that tho' it was immediately dreſſed, yet was there no hope of Cure. He was treated after the ſame manner with the former, but was much more eaſily cured, by means of an univerſal Sweat, whereby that very day all the Accidents were removed. In eight days time he went out from the Hoſpital entirely cured.

Were I to give a particular account of the numerous Cures of the like nature that have been done according to this Method, there would be enough to fill a large Volume, all which were neither attended with any evil Accidents during the time of the Cure, nor followed by any after it; nor did they ever leave *Fiſtula's* behind them. I ſhall ſpeak of *Gunſhot Wounds* in the following Chapter.

CHAP. XI.

Of the Breaſt.

Obſ. 10. IN the Year 1692, was brought to the 'foreſaid Hoſpital of *Briançon* a Priſoner of the Army of *Savoy*, who was wounded with a Bullet, which entred near the right Breaſt towards the Armpit, and paſſed out of the Body four Fingers-breadth from the ſixth *Vertebra* of the Back, having in its way broke aſunder the fourth Rib.

I enlarged both the Orifices, but moſtly that of the Back, which was ſomewhat lower than the other. We dreſſed him only once a day at firſt, without either Tents or Dilaters, and from the hinder Orifice came forth a certain thin watry Humour, which Evacuation continued till the falling of the Eſchar, after which he was dreſſed only once in two days. I kept the laſt-mentioned Orifice open from time to time by means of a prepared Sponge, conjecturing there were ſome Splinters of Bone to be diſcharged; which accordingly came to paſs, without any Pain, about the 18th day of the Wound: From that time I endeavoured to heal it up, applying between the Orifices Compreſſes dipt in warm Wine. During this Cure, I could obſerve no ſenſible Criſis, nor did any Accident happen. It was finiſhed in thirty days.

Reflect. In this Wound the Lungs were untouched, for any thing that appeared, a Rib only being broken, and the *Pleura* hurt, which indeed had been ſufficient to produce fatal Accidents, had any other Method been followed; for if in this caſe Tents had been uſed, or had the Wound been cram'd full of Doſſils, as has been often done on ſuch occaſions, the *Matter* proceeding from the Diſſolution of the Eſchar and Contuſion being pent up between the two Orifices, and ſtill encreaſing, and finding no vent, would infallibly have broken into

into the Cavity of the Breaſt, from whence it could not have been drawn forth, but by the Operation of the *Empyema.*

An Accident like unto this hapned this Year to a famous Officer of our Army in *Savoy*, who having received a Wound that was thought to penetrate, and really did ſo, was dreſſed with Tents; but the *Matter* finding the way by which it ſhould have been diſcharged from the Body, intercepted; and paſſing among the broken pieces of fractured Rib, diffuſed itſelf into the Capacity of the *Thorax*; and in this condition he died, having his Breaſt full of *Matter.*

CHAP. XII.

Of the Breaſt.

Obſ. 11. UPON the 22d Day of *June*, 1693, the Marquis *de Larray*, Lieutenant General, took by Storm a Poſt in the Valley of *Barcelonetta*, and on this occaſion had 25 or 30 Men wounded, who were ſent to our Hoſpital of *Briançon:* Among others, there was one called *Simon Cotaut*, of the Regiment of *Vendoſme*, and Company of *Berole.* This Man had received a Bullet, which went in hard by the ſixth *Vertebra* of the Back, breaking in its Paſſage the tranſverſe Proceſs on the right ſide, and came out of the forepart of

of the *Thorax*, between the ſecond and third upper Rib, towards the left ſide.

This Wound was attended with all the moſt dangerous Symptoms that uſe to appear when the Lungs are wounded, and was indeed one of the moſt conſiderable that had been under Cure in the Hoſpital.

There was not here any need of dilating the Orifices, the largeneſs of the ſize of the Bullet having done it to ſome purpoſe. The Wounds were dreſt without any Tent, only with large Pledgits and a good agglutinative Plaiſter, the Compreſſes and Bandage being ſuch as uſual: Diverſions were made without delay, and a courſe of Diet appointed. He was dreſſed but once a Day, and that with all poſſible Speed.

The hinder Orifice of the Wound did blow with ſuch force, that all the By-ſtanders were ſurprized at it; and ſuch a prodigious quantity of *Lympha* did iſſue from it, that oftentimes it was neceſſary to change the Linens twice a Day. Diuretick and vulnerary Potions were given.

This large Evacuation continued for about 12 or 14 Days, after which the wounded Perſon was dreſt but once in two Days. The 21ſt or 22d Day the Aperture of the *Pleura* on the Back was perfectly cloſed up, the other having done the ſame ſome Days before. There was nothing came away as we could obſerve, either from the broken Proceſs or the Ribs that had

had been touched in the Paſſage of the Bullet, and in 35 days, or thereabouts, the Orifices were both entirely filled up.

Reflect. This wounded Man was ſent to the Hoſpital as one of whom all Hopes had been laid aſide: for the Surgeon-Major of the Regiment, who at firſt dreſt him with great care, told his Captain, his Death was unavoidable.

This ſame Captain, about a Month after, coming to *Briançon* with the *Lieutenant-Colonel* of his Regiment, who had been wounded with a Sword, was much ſurprized when he was viſited at his Lodgings by this Soldier, who was at that time as vigorous as before he received his Wounds, on which he had then only a Plaiſter. The Surgeon alſo teſtified to me his Amazement, enquiring in what manner I proceeded to perform that Cure in ſo ſmall a time.

This Cure is of itſelf ſufficient to evince, that in Wounds of the Breaſt there is no need of *Tents*; and moreover, does demonſtrate, that the Operation of the *Empyema* is attended with much better Succeſs, when performed on the hinder, than on the lateral Parts of the *Thorax*; for this Operation is done with deſign to give paſſage to the *extravaſated Blood*, and to evacuate the *Matter* contained in the Cavity of the Breaſt, for which Purpoſes this place is much more convenient than the others, the Humours being thereby diſcharged as ſoon as bred

bred, unleſs they be retained by *Tents*. By this Method the *Patients* are not troubled with violent *Agitations*, but enjoy a profound *Quiet*, the *Parts* have liberty to perform the neceſſary *Motions*, and *Nature* acts without Conſtraint, ever finding the ways open, by which ſhe may deliver herſelf from what is contrary and hurtful unto her; ſo that nothing is then to hinder her from cloſing up the Wound whenever ſhe finds herſelf diſpoſed ſo to do.

If *Gun-ſhot Wounds* of this nature, notwithſtanding the Havock a Bullet makes in the places thro' which it paſſes, are ſo eaſily and ſpeedily cured by this Method, we have all the reaſon in the world to believe, that Wounds made by ſharp Inſtruments, where there is ordinarily only a ſimple Solution of Continuity, may be cured with much greater Facility.

But we muſt obſerve, that in this Way of Dreſſing great Care is to be had of covering ſuch Wounds with good ſubſtantial Pledgits, of ſuch bigneſs, that there may be no danger of their being puſhed into the Cavity of the Breaſt by the weight of the incumbent Air: And upon the Pledgits we muſt apply a ſtrong and agglutinative Plaiſter, ſuch as that of *Andreas à Cruce*, which muſt likewiſe be ſuſtained with a Compreſs four double, and all kept on with the Napkin and Scapulary; all which Precaution is neceſſary to withſtand the entry of the Air, which otherwiſe, the uſe of *Tents* being

being laid aſide, might paſs into the *Thorax*, and there produce fatal Accidents.

M. *Verduc*, tom. 1. ch. 14. adviſes not to uſe *Tents* in *Wounds of the Breaſt* for too long time, leſt thereby incurable *Fiſtula's* be occaſioned.

CHAP. XIII.

Of the Breaſt.

Obſ. 12. WHEN I was at *Lucerne*, there was brought to the Hoſpital, in the Year 1688, a Soldier of the Regiment of *Saluce*, who was wounded with a *Stilletto* (which is a Weapon made in form of a Poinard) on the ſide of the *Cartilage Enſiformis*, the Wound, as was evident to be ſeen when 'twas dilated, paſſing upwards by the ſhort Ribs, and piercing the *Midriff* in its fleſhy part.

He was dreſt with a Pledgit only, covered with an Incarnative which was pretty liquid: The neceſſary Diverſions were performed, and ſuch a Diet was ordered as ſuited beſt with the Greatneſs of the Wound, and the Strength and Conſtitution of the Patient. He was dreſſed only once in two days. The Suppuration was but very ſmall, and in the ſpace of 8 or 9 Days he was compleatly cured.

Reflect. If this Wound had been dreſt with *Tents* after the ordinary manner, I leave it to be

be judged by every one, if ſuch agreeable Succeſs could have been expected, ſeeing the *Tent* would unqueſtionably have cauſed fearful Irritations of the *Diaphragm*, which without ſuch Irritation is with great Difficulty brought to re-unite, becauſe of its perpetual and neceſſary Motion. In fine, this Wound, how inconſiderable ſoever it might appear, had certainly proved mortal, if it had been ſtuffed with an *extraneous Body*; which by encreaſing the Diviſion of the Midriff, would have proved an Impediment to its Action: For every Body knows that Wounds in its nervous Part are deadly; and that thoſe in the fleſhly Part may become ſo, when exaſperated by ill Treatment, or neglected.

CHAP. XIV.

A Remark on one wounded in the Breaſt.

Obſ. 13. IN the laſt mentioned Year, and in the ſame *Hoſpital*, one of the Wounded died on the fifth or ſixth Day of his Wound: And becauſe it had not at all appeared to be mortal, the Bullet having but glanced upon him, whereby the fifth Rib was only broken, and the *Pleura* ſlightly hurt, I opened him, that I might diſcover the Cauſe of his Death. At firſt I was of Opinion, that an *Aſthma*, with which he was afflicted when

alive, and which had almoſt quite diſabled him for Service, had conduced much to the ſhortning of his Days; but I was convinced of my Miſtake, when I perceived all the Parts in the Breaſt in a very good Condition; only the *Heart* had its *Ventricles* filled with *Polypus's* of the Thickneſs of a large writing Quill, and about the Length of the little Finger; there being four in the right, and two in the left *Ventricle*.

If we may give Credit to Dr. *Lower* of *Oxford*, in his Treatiſe on the *Motion of the Heart*; we may eaſily enough account for the Death of this Man. He ſays, that in order to continue the *Circulation* of the Blood, and to ſend a convenient Quantity thereof thro' the Veſſels, the two *Ventricles* of the *Heart* muſt be of an equal *Capacity*, and moreover that they muſt have a like *Strength* to undergo this Labour. Now this Equality not being to be found in the *Heart* of him whom we ſpeak, its Motion muſt needs have been depraved by the Diſproportion of the Weight of the *Polypus's*; and by the Inequality of the Capacity of the *Ventricles*: Or becauſe the *Heart* being overcharged, could not contract itſelf without much Difficulty; ſo that remiting much of its Motion, it became weak and languiſhing: And the *Miariff* alſo, to which it is always tied, did loſe its neceſſary Vigour; eſpecially after his receiving the Wound: By reaſon of which, the Breaſt could not be dilated without Trouble and Pain, becauſe of the broken Rib, and of

of the Solution of Continuity of the *Pleura*, Intercoſtal Muſcles, and Muſcles of Reſpiration: Wherefore the *Heart* and *Lungs* being deprived of their neceſſary Relief, Suffocation and Death were unavoidable.

Though this is a Subject foreign to our preſent Deſign, yet we judged it would not be amiſs here to take Notice of it, for Caution and Advice to others in a like Occaſion.

CHAP. XV.

Of the lower Belly *and* Loins.

Obſ. 14. IN the ſame Year 1688, a Soldier of the Regiment of *Montferrat*, called *Sans Soucy*, was wounded by a Bullet, which entring before at the Region of the *Navel*, came out behind at that of the *Reins*, piercing the right *Ureter* as it paſſed along. He was at firſt dreſſed by one of the Maſter-Surgeons of *Turin*, who uſed to aſſiſt us; which he performed after his own way.

The Orifice which was in the Belly, notwithſtanding the *Tents* which he uſed, was cloſed up, after the falling off of the Eſchar of the Teguments: But it fared otherwiſe with that in the Back; for that Surgeon being careful to keep it open with a thick and long *Tent*, hindering alſo the Re-uniting of the *Ureter*,

which occaſioned the *Urine* to come forth at the *Wound*. I having ſeen him one Day, adviſed the Surgeon ſpeedily to take away the *Tent*, if he would avoid an incurable *Fiſtula*; but my Words were to no Purpoſe; for had he complied with them, he would have thought he had offended againſt the Rules of *Art*, and ancient received *Maxims*, with which my Advice was inconſiſtent.

Some Days after, ſeeing this Wound in a very bad Condition, being covered with a whitiſh Fleſh almoſt without Senſe, and ready to become a *Callus*, I was willing to prevent the fatal Conſequences of that indiſcreet Dreſſing: Wherefore, with a diſſolved Cauſtick, I conſumed all that appeared callous about the Lips of the Wound, cauſing alſo ſome of it to paſs into the Cavity thereof, and leaving out the *Tent*, I expected the Diſcharge of what the Cauſtick had mortified: When the Fleſh had regained its uſual Colour, without loſs of time, I ſyringed into the Wound ſome Balſamick Water. I alſo uſed the Balſam of *Peru* alone for ſome Days, and after that, the Styptick Plaiſter of *Crollius*, with little longiſh Compreſſes that were placed on the two Sides of the Wound, to preſs together the Brims. Thus the Wound begun to be filled up, and the Urine did by little and little reſume its former Courſe; and in about eighteen or twenty Days the wounded Perſon was perfectly cured.

Reflect.

Reflect. In the Progreſs of this Cure may evidently be perceived the Difference between the Method uſed by many Surgeons fondly conceited of their own Opinions, and that I practiſe; for, in this Caſe, had the firſt been continued but for eight Days time, the Wound had become either extremely difficult, or impoſſible to be cured. This is confirmed by the Wound in the Belly, the ſpeedy Cure whereof is to be attributed to the Motion of the *Inteſtines*, which, contrary to the Deſign and Deſire of the Surgeon, expelled the *Tent* ſo ſoon as applied, in ſuch ſort, that it was completely cured a little after the falling of the Eſchar.

Wherefore we can never too much blame thoſe who are ſo obſtinately wedded to the Uſe of *Tents* in Wounds of the lower Belly; they ought altogether to be laid aſide, in ſpite of all the Objections may be made in their behalf, for which undoubtedly there is no real Ground. Experience gained by Practice has ſo undeceived me touching the Uſe of *Tents*, that I have left off the Uſe of them, not only in the lower Belly, but even in all other Places of the Body, unleſs upon a very preſſing Neceſſity. But in the Wounds of the *emulgent Veſſels of the Reins*, *Ureters*, and *Bladder*, as alſo in thoſe of the *Joints*, they occaſion Accidents which oftentimes prove mortal, or otherwiſe leave behind them Infirmities that ever after render Life miſerable.

CHAP. XVI.

Of the Ventricle.

Obſ. 15. ONE of the principal Deputies of the Hoſpital of *Briançon*, in the Spring of the Year 1695, received a Wound in the upper and middle Part of the right *Hypochondrium*, piercing in Appearance to the *Ventricle*, or to the *Pylorus*. I could not find out the Depth of the Wound with the Probe, notwithſtanding all the Poſtures I could put the Patient in, but an Accident that immediately fell out diſcovered the Truth of the Matter; for tho' he had ſupped very ſlightly, he vomitted up again all he had taken, mixed with pure *Blood*. I immediately dilated moderately the Wound, that a free Paſſage might be left to the *Blood* that poſſibly was extravaſated in the lower Belly, or to the *Matter* which might afterwards breed there. I dreſt him with a Pledgit only, on which I applied a ſuitable Plaiſter and Bandage. I bled him a little after, and ordered a very exact Courſe of Diet: The *Blood* was thin, muddy, and corrupted, whereby I perceived the ill Habit and ſickly Diſpoſition of his Body. He ſpent the Night reſtleſly, becauſe of Pains over all the lower Belly, and a violent Fever, which kept him from Sleep. In the Morning I repeated the Bleeding: He had ſeveral Motions to vomit, but could not; and nothing

nothing at all came from the Wound, which was dreſt as before.

There being two Enemies to be grappled with, I propoſed to continue the Diverſions without Interruption, which was alſo approved of by our Phyſicians. We uſed *Potions*, *Juleps*, and *Ptiſans*, ſuch as were moſt proper for purifying the Maſs of Blood, and blunting the Points of the Acids; to which I added ſome *Vulneraries*. *Suppoſitories* were uſed to procure Stools, but to no purpoſe, which obliged us to give him from time to time half a Pound of *Decoction* in a Clyſter, but with ſmall Succeſs. This Method we continued for ſeven Days, without being able to obſerve any conſiderable Change, either as to the *Fever* or *Pain*, in which time he was let Blood ſix or ſeven times. In fine, toward the ſeventh or eighth Day of the Wound his Belly was opened; at firſt he had a kind of *Bloody Flux*, but afterwards he voided *pure Blood*, tho' in no great Quantity. I cauſed ſome *vulnerary Plants* to be boiled with his Broth, and made him take for ſome Days faſting a ſmall Spoonfull of our *Samaritan Balſam*, called that of the *Scripture*. The Fever and Pains abated a little, which gave me ſome Hopes of Recovery. The voiding *Blood* by Stool continued till the fourteenth Day, and then all the dangerous Symptoms diſappeared, and the Wound was completely cured, without having afforded any conſiderable Store of *Matter*.

Reflect. 'Twas only the Situation of the Wound, together with the Accidents which followed, made me conclude, that either the *Ventricle* or the *Pylorus* was wounded. Having therefore no certain Sign to direct my Judgment in this Affair, I tried if the Sword which had given the Wound could make any Diſcovery, and found it marked with Blood ten Inches, or thereabouts. There needed no more to aſſure me of the Nature of the Wound; but that which altogether convinced me, was the Blood voided by Stool the ſeventh Day of the Wound: This having been collected in ſuch a Quantity as was ſufficient to preſs and puſh forward the Excrement contained in the Guts, at length made way for itſelf; and if we had delayed to bleed him, or done it more ſeldom, he would certainly have had a great and very dangerous *Flux of Blood*, beſides a Number of other Accidents that infallibly had followed.

It appears then that the true Knowledge of Wounds which pierce into any Cavity of the Body, and hurt the inward Parts, depends on the *Accidents*; and 'tis of high Concern to a young Surgeon, not to confide too much in his Probe, thereby to give his Opinion. He ought alſo to make all requiſite Diverſions, and to endeavour with all neceſſary Care to avoid and prevent Accidents, which too often, when arrived to a certain Height, become Proof againſt all our Endeavours.

A great many wounded Perſons, have been ſent to me, dreſſed at firſt as if their *Wounds* had been but ſlight, which nevertheleſs I have found to be deep, and very conſiderable. It is ſometimes not poſſible to put the Patient in the ſame *Poſture* he was in when he received the Wound: So that it is an eaſy matter to be deceived, if we truſt to ſuch uncertain trials, as thoſe made with the *Probe*: The Parts may have changed their Situation, or they may be ſwelled; or clotted Blood gathered together in the Wound, may oppoſe the *Probe*'s Paſſage; or, when it can't trace the Way of the Inſtrument that made the Wound, it may ſlide along between the Interſtices of the *Muſcles*. Oftentimes the wounded either know not in what Poſture they were, or are miſtaken therein; or they are not in a condition to give an Account. Finally, it is much better to exceed in *Exactneſs*, which can't prejudice the Patient, than to take up with an *Uncertainty*, which may coſt the wounded his *Life*, and the Surgeon his *Reputation*.

Moreover, it appears by the Succeſs of this *Cure*, that the *Orifices* of penetrating Wounds afford but very ſmall Aſſiſtance to the cure of the inward wounded Parts; for it is next to impoſſible to convey thro' them Remedies to thoſe Parts that want them, and for which they are deſigned: This I am bold to affirm, contrary to the Sentiments of the An-

cients and of *Fabricius ab Aquapendente*, and ſome Moderns. It is alſo ſcarcely to be expected, that the Blood which flows from theſe Parts, ſhould come forth by the *external Orifice*, as we have obſerved, unleſs the lower Belly be quite filled up with Blood. And, in fine, the keeping open of the Wounds is more pernicious than profitable; ſerving only to introduce the Air into Places, where it almoſt never fails to occaſion Irritations, diſquieting Pains, Coagulations, Obſtructions or Corruptions, and oftentimes all theſe Evils together.

Galen affirms, that Wounds in the Bottom of the Ventricle, if not great, are curable; but *Celſus* is of Opinion they are mortal. Now, how to reconcile ſuch oppoſite Sentiments, I know not. However, that they are not abſolutely mortal, this Cure is a ſufficient Proof. But it is nevertheleſs true, that they are very dangerous, and their Cure uncertain, being attended with many Accidents, the leaſt of which may prove fatal; ſuch as *Vomiting*, a Diſorder peculiar to this Part; or a Flux of Blood from the Branches of the *Arteria Cæliaca*, the *Vena Gaſtrica* and *Gaſſre Piploica*; whither ſcarce any *Aſtringents* can reach, and where they can't be kept on. Alſo *Convulſions* may be occaſioned by the wounding of the *Nerves*, that proceed from the *Recurrents*: Add to theſe, that by Wounds of this Part, the Chyle may be evacuated ſo ſoon as made.

CHAP.

CHAP. XVII.

Of the Perinæum.

Obſ. 16. DUring the Campaign of the aforementioned Year 1688 a Soldier in the Regiment of the Duke of *Savoy*, and Company of *St. George*, called *la Couleur*, was ſent to me, having an *Abſceſs* which covered all the *Perinæum*, and part of the *Scrotum*.

After I had opened it on the left Side, at that Place where ordinarily the Operation for extracting the *Stone* is performed, there came out a great deal of *corrupt Matter*, with much *Urine*, whereby I underſtood, that by the long ſtay of the *Matter* the Membranes of the Bladder were vitiated and corroded.

I uſed neither *Tent* nor *Dilater* to the Sore, but judged it ſufficient to drop into it a Medicine for cleanſing the Ulcer. The Suppuration laſted for the ſpace of 15 Days, which yet hindered me not (from the very firſt) to uſe little, long and ſlender Bolſters, for bringing together the divided Parts, which I kept faſt by a ſtrong Bandage, fitted to the Figure of the Part.

After this, perceiving the *Matter* came away in a moderate Quantity, and of a laudable Conſiſtence, tho' mixed with ſome Urine, I uſed more powerful Incarnatives, Balſamic Water, and the *Balſam of Peru*, and upon theſe *Crol-*

lius's Plaiſter. I ſtraitened the Bandage, obliging the Patient to keep his Thighs cloſe together: Thus, by degrees, the *Urine* reſumed its former Courſe, and in five or ſix Weeks time the Cure was finiſhed.

Reflect. This Cure is inconſiſtent with the Opinion of *Galen*, who, *Aphor.* 18. ſays, That Diviſions of the Bladder cannot be united, becauſe it is a Part without Blood.

I have had many under my Hands that were wounded in the Bladder, who were all happily cured by the ſame Method: And indeed, if loſs of Subſtance, occaſioned by the corrupting *Matter* of an *Abſceſs*, has been readily enough made up, 'tis eaſy to believe, ſimple Diviſions thereof by external Cauſes may with much more Eaſe and Expedition be united. This is ſufficiently demonſtrated by the great Number that have recovered after *Cutting* for the *Stone*. And if ſometimes *Fiſtula's* were left after this Operation, they have been occaſioned by keeping *Tents* in the *Wound* without any neceſſity. I know M. *Verduc* imputes this to the ſharpneſs of the Urine, but that I can't be perſuaded of, having obſerved in many Places in my Travels that the Country People have uſed nothing but their Urine to cure their *Wounds*.

But if we reflect a little on the Effects produced by *Tents*, which many People uſe in the diviſions of this Part, we may ſoon be convinced

vinced that they are the cauſe of this *Accident*, by keeping open a Way for the Paſſage of the Urine, which tho' it cannot run in a full ſtream ſo long as 'tis hindred by the *Tent*, yet this being penetrated by the Urine, dulls the Senſe of the Place, and turns the Fleſh callous.

When a *Wound* abounds in moiſture, be the Humour what it will, 'tis of difficult Cure. This is ſufficiently confirmed by the *Fiſtula's* which happen in the Breaſt or Joynts, tho' the *Urine* have no hand in the Matter. Moreover, to convince us that the Humours wherewith *Wounds* and *Ulcers* are watered are a hinderance to their joining and filling up, we need only to conſider theſe Openings in the Thighs and Legs of *Hydropick Perſons*, that are made by *Nature*, or which we are neceſſitated to make by *Art*. Every Body knows, the Cure of theſe is extreamly difficult to be effected, becauſe of the Humidity wherewith they are continually ſoaked; which is ſufficient to ſupport what we have advanced on this Subject, and confute ſuch as are of a contrary Opinion.

Moreover, the breaking or fretting of the *Lymphatic Veſſels*, which occaſion the perpetual running of *watry Humours* in *Sores*, hinders their Re-union, in regard that this Seroſity dilutes and carries away the *nutritious Juice*, and brings them to a *Fiſtula*. Great Suppurations alſo have the ſame miſchievous Effects; but theſe being not ſo obſtinate, are more eaſily con-

conquered than a running of the *Lympha*.

Finally, if we would effect a ſpeedy Cure in Wounds of the Bladder, we muſt carefully ſhun whatſoever may widen them, or hinder their Re-union; we muſt apply ſome powerful *Incarnative*, ſuch as *Balſam of Peru*; a ſubſtantial *Agglutinative Plaiſter*, ſuch as that of *Crollius*, with ſmall longiſh Compreſſes, and a ſufficient Bandage, as hath been ſaid; but above all, we muſt take care that the *Patient* be altogether at reſt, without any diſturbance. Theſe are the Means I have found moſt effectual, and moſt ſucceſsful, in bringing ſuch kind of *Ulcers* to a perfect Cure.

CHAP. XVIII.

Of the Fundament.

Obſ. 17. MOnſieur *de Monrodon*, Captain of a Battalion of the King's Regiment commanded by M. *Desbordes*, having been four Years ago cured of an *Abſceſs* in the *Anus*, there remained ſtill ſome *fiſtulous Sinus's*, from which there was always diſcharged a great deal of *Matter*. This Inconvenience obliged him, in the Year 1695, to demand my Advice. Having obſerved ſeveral *Calloſities* about the *Anus* with deep and winding Cavities, I propoſed to him to lay open the *Fiſtula*, in order to conſume theſe Hardneſſes, and cleanſe the

the *Bottom* thereof, without which there was no hope of a perfect Cure; but he calling to mind the Torments he had endured in the firſt Cure, put it off for ſome time; till falling into an Indiſpoſition, occaſioned by his ill Habit of Body, the *Fiſtula* opened of it ſelf, about a Month after I had ſeen him, with an extraordinary Running, and abundance of *Matter*, accompanied with quick and inſupportable Pain.

I was at that time in a Place at ſome diſtance from our Hoſpital, wherefore he cauſed himſelf to be dreſſed by a *Mate* of the Regiment, who having nothing but the *common Remedies*, and underſtanding only the *ordinary Method*, filled up that large *Cavity* with a great Quantity of *Lint*, armed with ſuppurative and putrefying Medicines, which made terrible *Corruption*, and great *Havock* in the Part, encreaſing the *Suppuration* and the *Pain*. He then ſent me an Account of the deplorable Condition to which he was reduced; begging me to come and ſee him. When I came, I adviſed him to cauſe himſelf to be removed unto a Place where I might take Care of him my ſelf; which alſo was done that ſame Day. The *Matter* that was retained, and the continual *Exaſperation* of the Parts, had made a hole big enough to admit one's *Fiſt*, which paſſed with a winding Courſe even to the *Os Sacrum*; there was alſo another *Sinus* that reached to the Neck of the *Bladder*: So that

the

the ſick Perſon could no ways go to Stool, or enjoy one Minute of Repoſe.

Having taken him under my Care, I dreſſed him only with the *Red Balſam* melted with an equal Quantity of the *Samaritan Balſam*, which I poured warm into the *Sinus's*; and after having filled them therewith, I covered the Orifices with a large Pledget dipt in the ſame, over which I put a Plaiſter, and upon this a Compreſs, making all faſt with a convenient Bandage. I cauſed him to uſe ſome abſorbing Medicines to dull the Points of the *Acids*, and *Ptiſans* to purify the *Blood*, and alſo ſome gentle *Purgatives*. This Method ſucceeded ſo well, that the Matter, which was thin, putrid and corroſive, became laudable; the Fleſh, which was looſe and waſted, by degrees recovered its firmneſs, the Patient went to Stool every Day without any Pain; at Night alſo he enjoyed the Repoſe which was ſo neceſſary for him: And, finally, in one Month's time he was compleatly cured, the Sores being brought to a firm and laudable *Scar*, to the Amazement not only of the Patient himſelf, but of all thoſe alſo who knew to what a deplorable Condition he was formerly reduced, being without all hope of Cure.

Reflect. Thoſe kind of Diſtempers are extreamly troubleſome that affect Parts on which, by reaſon of their neceſſary Uſe, it is very diffi-

difficult to keep the *Dreſſings:* Such a part is the *Anus*, that is often afflicted with great Suppurations, and diſmal Putrefactions, which delay and protract a Cure to a formidable length. The Perſon we have been juſt now ſpeaking of, is a clear Demonſtration of this. In the firſt Cure, *ſix Months* time were ſpent; he endured much Pain and Trouble, and after all, it was not brought to *Perfection:* From whence I infer that it is evident, that the *Gentleneſs* and *Eaſineſs* of our Method, was the genuine Cauſe of the perfect and ſpeedy Cure that enſued; for that *Organ*, which ſerves for the Common-ſhore of the Body, being left at Liberty and not ſtraitned by an *extraneous Body*, the Excrements were neither preſſed nor retained, but were diſcharged with *Eaſe*, and without *Pain*; whereas on the contrary, when Wounds in this Part are crammed up with Lint, it is impoſſible that Evacuations can be made by the *Anus*, but the Excrements muſt preſs and ſqueeze the crouded Lint againſt the Sides of the Sore; which muſt needs occaſion inſufferable *Pains*, and oftentimes alſo a Flux of *Blood:* And indeed Monſ. *de Monrodon* affirm'd to me, that he never went to Stool all the time of his firſt Cure, but he was ſtill troubled with theſe two Symptoms.

Finally, we may ſee, that when *putrifying* and *ſuppurating Medicines* are laid aſide, the Parts are by the means of unctuous Balſamicks gradually

gradually reſtored to their former Temperature; and that when the Points of the *Acids* are broken, and the *Maſs* of *Blood* purify'd by proper Remedies, the *natural Balſam* of the Parts doth cleanſe, fill up with Fleſh, and cicatrize, whenever the Occaſion requires.

CHAP. XIX.

Of the upper Part of the Shoulder.

Obſ. 18 IN the Year 1678, as I travelled from *Turin* towards *Rome* and *Venice*, there was brought to me, the Son of an Inhabitant of a certain place called *La Roſe*, having an Abſceſs that covered all the *Acromion*, and the upper part of the Shoulder-bone of the right Side, with a great Defluxion of Humour upon the Joint. I ſhewed his Father the urgent neceſſity there was of opening it, and the Accidents that otherwiſe might enſue, but the fond Love he had for his Son, made him withſtand the Propoſal. Sometime after this it opened of its ſelf, and the thinneſt Part of the Matter made its way thro' ſeveral Holes, into which ſo many *Tents* were put by a Surgeon of the Place, who dreſſed him at his Father's Deſire. This Method was followed for 2 or 3 *Months* without any Proſpect of a *Cure*.

At my return, he was committed to my *Care*, in a very bad Condition: He was altogether deprived

deprived of the *Motion* of his Arm; ſeveral *Cavities* were formed about the Joint; there was a perpetual *Flux* of *Matter*; and the *Ligaments* were relaxed; which made me fear the falling out of the Head of the *Humerus*. I was perſuaded that the Diſtemper was paſt Cure, conſidering the Weakneſs of the Patient, and of the part affected, and the ill Diſpoſition of his Body, which yet was but a Symptom of the Diſeaſe, occaſioned by the *Irritations*, and continual *Diſcharge* of *Humours*, as I knew by the Sequel. I made however a pretty large Opening in that which I judged the moſt depending part, and ſtraitway took away the *Tents*, tho' at that time I was not altogether convinced of their pernicious Effects.

From that time forth the Flux of Matter begun to diminiſh, which made me endeavour, with all poſſible ſpeed, thoroughly to cleanſe the bottom of the Ulcer, and the *Sinus's*, with a Lotion of *Birthwort*, *Myrrh*, *Sugar-candy*, and *Vitriol*, in *White-wine*, which had very good Succeſs: I did my beſt alſo to ſtrengthen the Joint. Finally, the Cavities were filled up by degrees; the higher Orifices were firſt cloſed up, and the others afterwards. He was cured in 2 Months time; but his Arm was ſomething more than other two, before it recovered its Strength.

Reflect. This ſudden good Succeſs falling out ſo unexpectedly, and at a time when I had

had caſually, tho' very ſeaſonably, laid aſide the uſe of *Tents*, began to open my Eyes and to make me entertain an ill Opinion of them: For I could blame nothing on this Occaſion, ſave the *Tents*, which had been ſo long kept in the Sore, for having cauſed all theſe Accidents, by the Irritation and Compreſſion of the Parts; and moreover by hindering the *Diſcharge* of the *Matter* from one dreſſing to another, whereby it had time to gather, and to ferment, to encreaſe the Cavities, and waſte off the Subſtance, to moiſten the Tendons, ſlacken the Ligaments, and to weaken and entirely ruin the *Part*. Finally, the moſt part of the Symptom ceaſing with the leaving out of the *Tents*, does ſufficiently evince, that they proceeded from them: And had the firſt *Method* been continued for a Month or two, a compleat Diſlocation of the Head of the Shoulder-bone, the Corruption of the Ligaments, and incurable *Fiſtula's*, had certainly enſued; and the Patient would have thereby been made lame during his Life.

CHAP. XX.

Of the Shoulder.

Obſ. 19. IN the Year 1692, a Soldier of the Regiment of *Sourche*, whoſe Name I have forgotten, was brought to the *Hoſpital* at

at *Briançon.* He was wounded with a Bullet, which entered at the foremoſt and middle part of the *Acromion*, and came out on the upper part of the Shoulder-blade, breaking the *Acromion*, with a part of the *Scapula*, as it went along.

The Orifices were ſtraitway dilated, and dreſt only with Pledgits and the Digeſtive: *Diverſions* were ſpeedily made, and his Diet ordered. In the firſt Dreſſings, ſeveral pieces of Bone, that could not be re-united, having been almoſt wholly ſeparated, came away; ſeveral others that were yet tied by a ſmall piece of the *Perioſteum*, tho' in appearance ſhaking and ready to fall off, were yet joined again.

Finally, all the adhering Splinters being again united, the Wound began to fill up, and in two Months time, or thereabout, was brought to a firm and laudable *Cicatrix*; to the great Surprize of all who had been preſent at the Dreſſings, no Accident having happened all the time of the Cure.

Reflect. It will certainly be thought ſtrange, that I permitted the Orifices to be cloſed up, without expecting the Diſcharge of the Bones: And it will poſſibly be ſaid that I dreſſed not according to Art.

But to me it appears much more reaſonable and advantageous, to have preſerved them, than occaſioned their Loſs; ſeeing a *Callus* has never

never the becoming Convenience of a natural Part: And the Excellency of Art conſiſts in curing ſpeedily, if poſſible, and without Pain, and in preſerving the Figure, Subſtance and Diſpoſition of the wounded Parts. 'Tis certain, that *Health* being the End of the Surgeon's Art, the principal Deſign is attained when the Cure is performed.

If that Intention which ought to be the Scope of the Artiſt, can, by this Method, be *gently*, *eaſily*, and *ſpeedily* accompliſhed, there is no Controverſy, but that it ought to be preferred to all others that are contrary to it.

CHAP. XXI.

Of the Arm.

Obſ. 20. THE following Year, a Grenadier of the Regiment of *Navarre*, call'd *Belle Humeur*, was brought to the ſame *Hoſpital*, wounded with a Shot on the upper Part of the left Shoulder-bone, about an Inch, or two Fingers breadth below the Joint: The Bullet entered on the fore-part, and went out behind, making a terrible Havock. Three or four Days paſſed, wherein he was not dreſſed, but only ſlightly at firſt, and without making any Diverſion. The whole Arm was diſtended like a Foot-ball, the Orifices were choaked up, inflamed, and diſpoſed to Gangrene.

I made Incisions in the Orifices, to give breath unto the Wound, and Scarifications over all the Arm; and having dressed with a Digestive only, without *Tents* or *Dilaters*, I let a good quantity of Blood run from the Part, by the Incisions, to empty it somewhat; and afterwards fomented it with Spirit of *Wine* and a little *Sal-Ammoniac:* I applied over all the Arm *Diapalma* dissolved in Oil of *Roses* and *Vinegar*, which in a little time abated the Inflammation of the Part, and lessened the Swelling.

Diversions were not omitted, but in spite of all that could be done, three *Abscesses* were formed, one at the bending of the Elbow inwardly, another on the outward and middle Part of the Arm, and a third on the hinder and almost lowest Part of the *Humerus:* They were all opened, and by their plentiful Suppuration the afflicted Member was eased. After three or four Splinters of the Bone, which stuck by their upper Part only to the *Periosteum*, were again joined, I bent all my Endeavours to bring together and unite the Lips of the Wound; and when the Eschar was entirely fallen, and the Symptoms vanished, I used only a simple *Incarnative*, dressing but once in two Days. The *Suppuration* was but small, and the Orifices began apparently to fill up, and in thirty Days were quite skinned over; so that from thenceforth I used the Bandage and Plaisters, in order to forti-

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fy the *Callus*: And now his Diet is encreaſed, and he is able to riſe from his Bed; at laſt he left the Hoſpital to return to his Regiment, forty four Days after he had received the Wound.

Reflect. The delay of the *Diverſions*, as it evidently appears, was one of the chief Cauſes of the Accidents that followed on this Wound; and 'tis plain, if *Tents*, *Dilaters*, or other exaſperating Things had been uſed in dreſſing, they had infallibly proved an Impediment to the diſcharging the Part and ripening the *Abſceſſes*, for Reaſons adduced in the firſt Part, where we diſcourſed of their fatal Effects.

Nature is, in ſuch Caſes, ſufficiently perplext without the additional Oppreſſion of the moſt grievous of all her Enemies; ſhe is as it were fettered, and can't act: And when by a healthful and critical Motion ſhe endeavours to deliver herſelf, as in the *Abſceſſes* of the former Cure, ſhe is unable to produce any deſirable Effect, ſo long as the Wound is cram'd full of Lint. The moſt frequent Conſequence of this is a ſtifling the *natural Heat*, after which follows a *Gangrene*. There has but few bad Accidents follow'd upon Wounds treated after our Method; and I dare affirm, ſcarce any have miſcarried under our Care, tho' more dangerouſly wounded than this Soldier whom we have been ſpeaking of, all which is owing to the gentleneſs of this way and uſe of *Diverſions*.

CHAP.

CHAP. XXII.

Of another Wound in the Arm.

Obſ. 21. IN the Year 1690. ſoon after the War was declared in *Savoy*, a Soldier of the Regiment of *Pondeux*, named *la Montague*, was ſent to the Hoſpital at *Briançon*, who had got a violent Blow with the handle of an Halbert, on the middle and outward Part of the left *Humerus*, whereby the *Bone* was broken to pieces, with a *Wound* and great *Contuſion*.

Several Portions of the Bone ſtuck out at the Wound, which did ſtill adhere to the *Perioſteum*. I placed them one by another, as gently and nimbly as poſſibly I could, endeavouring to give them their natural Poſition. I rubbed the Part with a ſtrong *diſſolving Balſam* very warm, which I had cauſed to be prepared for Contuſions. I joined the Lips of the Wound, and applied an Incarnative. I gently rolled the Part with a Band about three Fingers breadth above the Wound, and with another as much below it, applying a Plaiſter made of *Diapalma* diſſolved in Oil of Roſes and Vinegar between the Bands, the middle Part whereof being oppoſite to the Wound, the ends met upon it, and covered it: Upon this I put a Compreſs, of the ſame figure and bigneſs, folded into three or four doubles, and dipt in warm

Wine, and then a piece of Paſtboard, which reſting with its ends upon the two Rollers, and embracing and keeping faſt all the Wound-Apparel, came together, and was tied on the hinder part of the Arm.

In this Paſtboard there was a hole cut out, where it covered the Wound, to which a piece of the ſame was fitted, to be taken off at each Dreſſing, and afterward put on: This was made faſt with a little Band, which I rolled about all the Paſtboard after I had applied my Dreſſings, in ſuch faſhion, that without diſturbing either the Arm or the Paſtboard, I had nothing to do but, when there was Occaſion, to untie the Band, take off the Piece, and lift up the two ends of the Compreſs and Plaiſter, and ſo to embrocate the Wound, and then to dreſs it with a *Pledgit* only, and do it up again.

In this manner it was dreſſed once a Day, for 5 or 6 Days, after which I gently took off all the Dreſſings, except the Rollers, and changing the Plaiſter and Compreſs, I dreſt but once in two Days. No Accident happened, for the Contuſion was quickly diſſolved; no Bones were diſcharged, and the Suppuration was but little, *Diverſions* having been made from the very firſt. The Wound was filled up, and compleatly skinned, about the 22d Day of the Wound, wherefore I thenceforth dreſſed it only with Rollers, the Plaiſter *pro Fracturis*, and the neceſſary Splents. Since that time I

have not ſeen him, becauſe then we left *Lucerne*; but 'tis certain he was paſt all Danger.

Reflect. If this Way of Dreſſing be compared with that of many Surgeons, who not only fill up the Sores with Lint, but alſo at each Dreſſing move to and fro the broken Pieces of Bone, in order to promote their Separation, it may be ſeen how different the Succeſs will prove. Had I treated this Wound in a rigorous manner, ſuch Accidents had undoubtedly happened as would have baffled my Care. The Suppuration would have been great; and thus the Pieces of the Bone, thereby quite ſeparated and carried into ſome Cavity, had cauſed many *Abſceſſes* and *Sinus's*; which Diſorders oftentimes cauſe a neceſſity of Amputation, and when the Strength is decayed, they bring on Death. After this I make uſe of a Piece of white Iron, formed in the ſame faſhion as the Paſtboard, with a Window opening upon the Wound, which being lift up, I dreſſed it without moving the Body of the Machine. But ſeeing in thoſe Places where Hoſpitals are not we have not every thing requiſite at hand, the Surgeon muſt ſupply that Defect by his own Ingenuity.

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CHAP. XXIII.

Of the Fore-Arm *or* Cubit.

Obſ. 22. IN the ſame Place, a Soldier in the aforeſaid Regiment received a Shot in the *Fore-Arm*, on the middle and hinder Part, which broke the *Radius*, and carried away a Part of the *Cubitus*.

He was dreſſed after our *Method*; but the Cavity of the Wound was filled with a Pledgit of very fine Lint dipt in a mixture of our *Balſam*, and a little *Linimentum Arcæi*, which eaſeth Pain, promotes the fall of the *Eſchar*, and reſiſts a Fluxion of Humours. Diverſions were made, and his Diet ordered.

We dreſſed him after two Days, and found two or three Pieces of Bone ſticking to the Lint. In the ſecond Dreſſing, I ſet the *Radius*, keeping it firm with little Compreſſes ſtiffened with Paſtboard: One of theſe I put on the fore-part of the Arm upon the broken Bone, another on the inward, and a third on the outward-part, making them all faſt with two Rollers, one above, and the other below the Fracture. This *Apparatus* kept the Arm ſtreight, and ſerved inſtead of a Defenſative. Over all we applied the Paſtboard, and ſupported the Arm with a Sling. The Suppuration was very moderate, and another Piece of Bone

Bone came afterwards away: We dressed but once in two Days, and on the twelfth or fifteenth Day of the Wound the Flesh began to cover the Bone, for which Cause we dressed him only once in three Days, and that very gently and speedily. Towards the twentieth Day, the Wound began to be filled up. The defect of the *Cubitus* was made up with a *Callus*, and the *Radius* recovered without Exfoliation, and all in four Weeks time; after which, I only used a Roller on the fracture Place. About this time we broke up from *Lucerne*, and I have not seen him since.

Reflect. The good Success, the Expedition, and the Gentleness of these *Cures*, ought in my Opinion to give some Reputation to this Way of Dressing. I have not seen, since I first entered upon Practice, any Method followed that has been either so short, so easy for the Patient, or so certain in the Consequence. Hereby those Pains are prevented which ordinarily bring *Fevers*, that are attended with many other *Accidents*: *Abscesses*, *Fluxions* and *Inflammations* are avoided. The *Matter* is but little, and that laudable. The wounded Person can take solid *Nourishment*, and necessary *Rest*, whereby all the Faculties become more vigorous, and *Nature* more active, *Flesh* is more easily generated, and a *Callus* more speedily formed, and, in fine, every thing with more facility re-established, and reduced to its *former State*.

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CHAP. XXIV.

Of another Wound in the Cubit.

*Obſ.*23. ABout the end of the Year 1695. I being in the ſame Poſt in the Hoſpital of the Abby of *Oulx*, as I was in that of *Briançon*, there was brought to us one called *Beaulieu*, belonging to the King's Battalion, commanded by M. *Desbordes*, and of the Company of M. *du Mont*. He was run with a Sword into the middle and inward Part of the left *Arm*, whereby the *Artery* between the *Radius* and *Cubitus* was laid open.

He had remained 8 or 9 Days in his Quarters, being dreſſed by one of the Mates; who, without making any *Diverſion*, only ſhut up the Wound with a ſtrong Stopple, which reſtrained the great Flux of Blood between Dreſſings: But at the time of Dreſſing he bled exceſſively. The Blood, which was extravaſated in the Member, did there corrupt, and cauſed Abſceſſes in ſeveral Places. But at laſt, his Surgeon ſeeing that his Strength was daily diminiſhed, and fearing ſome fatal Accident, cauſed him to be ſent to *Oulx*.

His Weakneſs was advantageous to him. For whereas *Amputation* was chiefly indicated, his loſs of Strength was a contrary Indication that prevailed over the former. I dilated the Wound, that I might diſcover the Artery, and empty

empty the Part of the Matter and clotted Blood wherewith it was filled. But being then unfurniſhed with ſuch things as were neceſſary for my Deſign, I applied a Button of *Vitriol* to the Aperture of the Artery; and having filled the Wound with Lint, and applied the other Dreſſings neceſſary on ſuch Occaſions, I let him Blood twice, but in ſmall Quantities, and gave him certain Emulſions, wherein were mixed ſome Anodyne Medicines, to retard the Motion of the *Blood*. I let two Days paſs without Dreſſing, but on the third, I found all I had done was to no purpoſe. At the Place where the *Artery* was opened, there was a conſiderable and painful *Swelling*; the *Lint* that filled the Wound was heaved up with the Pulſation, and a bloody Water came out, which preſaged the ſudden return of the Bleeding. I cauſed to be prepared my Troches of *Roſe-water*, *Gun-Dragon* and *Vitriol*, with ſome good *Styptick water*, and two Days after I took out all that filled the Wound: I alſo took away the *Eſchar* made by the *Vitriol*, and the *Fungus* that was grown in the Wound; which I further dilated to give vent to the Blood that had diffuſed it ſelf thro' the Fleſh, beyond the extent of the Wound. All this time I repreſſed the Bleeding by the *Turnkey*, which I cauſed to be ſlackned, to diſcover again the opening of the Artery, to which I applied two little Troches, ſupported by a ſmall Compreſs dipt in

the *Styptick-water:* I filled the Cavity of the Wounds with Doſſiis pretty hard, and moiſtened in the ſame Liquor; then I took a large Compreſs three Fingers breadth thick, and a Foot in length, covered only with *Bole* diſſolved in Vinegar; this I applied along the *Artery* quite to the Arm-pit; and laſtly, an aſtringent Plaiſter, which I made faſt with Compreſſes and ſtrong Bandage. I cauſed the Arm to be laid on a Pillow, with the Hand higher than the Elbow. Two Days after, I untied the Rollers, and took off the Compreſſes and the Plaiſter; and ſeeing things in a good Condition, I applied new *Aſtringents*, without touching the Wound. This Method I continued 2 or 3 Days; afterwards I begun to remove the Doſſils that were outmoſt, ſuſtaining always the others with new ones, and hindering alſo thoſe which were next to the Artery to fall off until the Suppuration were begun, that time might be given to the *Fleſh* to cover the *Artery*, the Bleeding being very well ſtopped. In effect, about 10 or 11 Days after the Application of theſe Dreſſings, all came off of its own accord, not one Drop of Blood following; for the *Artery* was pretty well covered. All this was done in Preſence of M. *Davejan*, one of the Phyſicians of the *Hoſpital*, a Man of Integrity, Merit and great Skill. In fine, the Wound was in a little time compleatly cured.

Reflect.

Reflect. This kind of Wounds, where *Arteries* are opened, are of all others the moſt tickliſh; they give a great deal of *Trouble*, and but little *Reputation* is gained by their Cure. Every one knows, that there was no Place for the Operation of the *Aneuriſma*, where this *Artery* was opened; and that it was neceſſary either to cut off the Member, or to let the wounded Perſon periſh, or to ſtop the Bleeding by ſuch means as I uſed. By this we may ſee, that it is not good to be too haſty in cutting off a Member, where Arteries are opened that admit not the *Aneuriſma*; that we ought not to deſpond, though our firſt Attempts to ſtop the Flux of Blood prove unſucceſsful; and that the *Troches* which I uſe, are upon many accounts better than *Vitriol*. This is not the only time that I have experienced the Succeſs of this Method on the like Occaſion: I made ſome Trials of the ſame at *Lucerne*, in the Year 1686, and in particular upon a certain Soldier who had the *Artery* that is between the *Tibia* and *Fibula* laid open; and after much Trouble, before I would condeſcend to the cutting off of the Member, I was willing to try this Method, which had alſo a very happy Succeſs. That we may preſerve a *Member*, we are to leave nothing undone; neither ought we to conſent to its *Amputation*, till firſt all other Means have been in vain eſſayed.

CHAP. XXV.

Of the Hands.

Obſ. 24. SINCE the Beginning of the War, I have had under Cure very many whoſe *Hands* were pierced, torn, or half carried away by ſuch Fire-Arms as burſt, which is a thing very ordinary in Armies. Many others have I likewiſe dreſſed, that had their *Hands* ſhot thro' with Bullets, and cut with ſharp Inſtruments, of which I ſhall not ſpeak in particular. But I may juſtly ſay, that all thoſe I have dreſſed in theſe later times, though by the Wounds the Part has been very much ſhattered and torn, have been always cured, without loſing what remained of the Member, and with little or no diſcharge of Splinters of the Bones, or loſs of Fingers, or their Joints.

In this kind of Wounds, as well as in others, I have avoided *frequent Dreſſing*, and the Uſe of *putrifying* Medicines: And I own that I have ever found the *Spirit of Wine* a very ſucceſsful Remedy in Wounds of the *Extremities*, and in thoſe of *nervous* Parts. I have uſed it chiefly in *Hoſpitals*, where it brought always a ſpeedy Relief.

Many of the Ancients have ordered to keep open for ſome conſiderable time the Wounds of the *Nerves* and *Tendons*; to give vent to

ſuch

ſuch Matter as by its Stay might corrupt the Subſtance of the Parts.

But Experience has taught me, that 'tis much more beneficial to the Patient in ſuch Caſes, to hinder, than to promote the Suppuration; by doing betimes what is neceſſary to prevent Fluxions upon the Part; ſometimes applying good Defenſatives to the ſuperior Parts, to repreſs the Activity of the Blood; and ſometimes uſing reſolving Anodynes to the Place afflicted, if there is need, to prevent or take off the *Pain*, from which moſt commonly the Accidents proceed that attend ſuch Wounds, and to guard off at the ſame time the Attempts of the *Air*, which is the greateſt Enemy of the nervous Parts.

I can aver, that by uſing this Method I have cured ſuch Wounds much more ſuddenly than I could any other way: And ſince all are agreed that the *Air* is pernicious to Wounds in general, I believe none will queſtion but thoſe of the *Nerves* receive thereby a more notable Prejudice than thoſe of any other Parts of the Body, conſidering their Tenderneſs, the Nature of their Subſtance, and their Temperament. I leave it then to Conſideration, whether Wounds of this kind could be defended from the Injuries of the Air, if they were kept open, according to the Opinion of the *Ancients*.

But it will be ſaid, that 'tis extremely difficult, after all poſſible Precaution, to avoid the uſe of *putrifying* and *irritating* Medicines, and of Dilaters, in Cures that are tedious: For if ſuch things as breed Fleſh, and are balſamick, be uſed when the Wound at the ſame time muſt be kept open, there will be a Neceſſity of conſuming inceſſantly the Fleſh with Catharticks, which are very apt, by the Pain they cauſe, to produce ill Accidents, eſpecially in Parts ſo ſenſible as theſe.

Now to this I anſwer, That if ſuppurating and putrefying Medicines are uſed, there almoſt ever infallibly follows a great Suppuration, and ſometimes a total Diſſolution of the nervous and tendonous Parts, eſpecially if *Tents* or *Dilaters* be alſo employed, which if but for a ſmall time they touch ſuch Parts, do oftentimes draw on Incurable, and ſometimes mortal Symptoms.

Wherefore I have ever judged it beſt to cloſe up the Wound as ſoon as poſſible on ſuch Occaſions, eſpecially when there is no extraneous Body that of neceſſity muſt be drawn forth; or if all requiſite Diligence has been already uſed at firſt Dreſſing to that Intent. In fine, though I have always not only avoided with all poſſible Care the uſing of putrifying Things, but alſo endeavoured to dreſs as ſeldom as might be, I dare affirm, that in this way of Practice there never happened

pened even the leaſt Accident, to all that great Number of wounded Perſons that was dreſt according to it, in our Hoſpital at *Briançon.*

Pareus, Book 13. Chap. ix. ſhews, That by this Method he ſucceſsfully cured the Pricking of a *Tendon*, which King *Charles* the ninth had received in Blood-letting: Though in another Place he finds Fault mightily with thoſe who uſe the Stitch to wounded *Tendons*: He would undoubtedly have been of another Mind, had he lived, and ſeen, as I, and many others have done, how often the deceaſed M. *Bienaiſe*, an expert Surgeon, has performed the ſame with Succeſs in his Houſe at *Paris*. But after all, we may maintain, that he is not the firſt who has practiſed the ſtitching of a Tendon; for in former times it was uſual, and many of the Ancients have done it.

CHAP. XXVI.

Of the Thigh.

Obſ. 25. IN the Year 1686, when the *Vaudois* were driven from the Vallies of *Lucerne*, one *le Grand*, a *Frenchman* by Birth, Sergeant in the Regiment of Guards, and at preſent an Officer in a Regiment of Fuſileers belonging to *His Royal Highneſs*, being wounded by a Bullet in the upper and outward Part of the right Thigh, and the Ball not to be found, was

was brought to the Hoſpital at *Lucerne*. He had lain a Day and a Night helpleſs upon the Ground; which occaſioned a conſiderable *Fluxion*, and an *Inflammation* of the Part. I made large Inciſions, and ſpar'd no Pains to find the Bullet, but all in vain.

He was forthwith let Blood, and had a Clyſter given him, an exact Courſe of Diet being order'd. The Bleedings were repeated, with the other Remedies for withdrawing the Humours from the Part. The Swelling and Inflammation were leſſen'd; and I began to think, that things were in a pretty good Condition: I kept in the Wound only a little *Tent*, about the length of two Fingers Breadth, very ſoft, and of pretty fine Lint.

Thus the firſt Accidents were vanquiſh'd, but others more troubleſome and more obſtinate yet remain'd; for the Suppuration and Flux of Humours was ſo prodigiouſly great, that I verily believ'd his whole Body would thereby have been diſſolv'd. At every time we open'd the Wound to dreſs it, which was twice a Day, more than a Pint of *Matter* came away, beſides what was diſcharged between Dreſſings, which might be judged as much: In the mean time the Strength of the wounded Perſon was more and more impair'd, and his Body inſenſibly waſted away.

I could aſcribe all theſe Accidents to nothing elſe but the Bullet, which remained in the

the Member: And this I the rather inclined to think, in regard that almoſt all the Bullets that were drawn from Wounds during this Campaign, were full of *Sublimate* or *Glaſs*, and many others of other *Metals*, and *Tin*.

I adviſed with M. *Conte*, then at *Lucerne*, Surgeon in Ordinary to his Royal Highneſs, who being acquainted with the Order of Cure and the Symptoms, was of Opinion, that by Purging the Moiſture might be dried up; this was accordingly put in Practice.

I was as eagerly deſirous to effect this Cure, as if all my Reputation had depended upon the Succeſs: And indeed it appeared as if *Providence* had thereby deſigned to open my *Eyes*, and to make uſe of me for the Relief of many others, I being qualified for that End by the Experience I attained in this Inſtance.

The wounded Perſon was greatly diſordered by the *Purging*, yea, in ſuch Sort, that I feared a *Gangrene*: The *Fever* was encreaſed, and the Patient had quitted all his Hopes, notwithſtanding the Aſſurance he had conceived of being cured under my Hands.

As for my ſelf, I began to deſpair; though it is my Humour never to give over my wounded Patient ſo long as Life continues; for his Thigh was all over *livid*, and the Spaces between the Muſcles, nay, all the Member, was filled and ſoaked with Matter, which every Day encreaſed, the Wound being as it were

an

an inexhauſtible Fountain. I conſidered with my ſelf a thouſand times, if there was any thing more I could do, or any thing further to be uſed. I had performed all that Art preſcribes, to dry up that Matter wherewith the Part was ever filled, having uſed not only a hard Bandage with expulſive Compreſſes, to hinder its gathering together and ſtay in the Part, but alſo ſudorifick Decoctions, though all in vain. I was alſo thinking to make a Counter-Opening under the Thigh, to give a more free Courſe to the Matter, and to hinder its Stay; but on ſecond Thoughts, I believed it would be to no Purpoſe.

M. *Conte*, and generally all who ſaw the Man, deſpaired of his being cured; and told me, that I vexed myſelf in vain, as if all my Reputation had depended upon the Cure.

Though I had hitherto tried all ſorts of Means in vain, yet I was obſtinately bent to find out ſome other way, by my own Conſideration, ſince the wounded Perſon himſelf was alſo deſperate.

As I have formerly ſaid, I had hitherto kept in the Wound a little *Tent*, about two Fingers breadth long, and very ſoft: This I reſolved altogether to lay aſide, and to dreſs the Wound with a *Pledgit* and *Plaiſter* only, and ſuch a Bandage as might be ſufficient to keep them on.

This frighted the poor dying Man; and it was with great Difficulty that now I could ob-

obtain his Conſent to have that power over him which of right belonged to me, and what formerly he had ſo freely granted.

In the Evening, to my great ſurprize, I found him in a much better Condition: The *Matter* came not away in ſo great a Quantity: That Night he ſlept much better than he had ever done ſince he received his Wound; and in the Morning he was yet better: This Evening the Matter began to be of a good Conſiſtence, and to be diſcharged in moderate Quantity. Henceforth I dreſſed but once a Day.

His *Fever*, which had continued from the Beginning, left him altogether, and the ſecond Day after the leaving out of the *Tent*; and from the fourth, he was dreſt only once every other Day; he alſo began to eat, and to recover his Strength: From the eighth Day nothing further came from the Wound, and on the twelfth after the diſuſe of the *Tent*, he was entirely cured; the Truth of which I call GOD to witneſs.

Reflect. This is the Cure, as I ſincerely proteſt, to which I have been moſt obliged. It was this which made me embrace that *Method* which now I expoſe to publick View, and which from this time forth ſucceeded ſo happily with me: And it is certain, that I had infallibly cured my Patient at once of all his Diſtempers, if I had continu'd but only for ſeven

or

or eight Days to uſe a *Tent*, though never ſo ſmall and ſoft.

From this time forward, I reſolved to abandon the uſe of *Tents*, and to give my Advice in this Affair to the Publick, when once an Opportunity ſhould preſent itſelf. I communicated my Deſign to M. *Thevenot*, Phyſician in Ordinary and chief Surgeon to their *Royal Highneſſes*, a Man of great Learning and Experience, to be eſteemed, as well for his profound Knowledge, as his eminent Virtue: And having related to him a Deſcription of the Cure, he confirmed me in my Opinion.

It was here therefore, in the King's *Hoſpital* ſettled at *Briançon*, that I drew out ſeveral *Obſervations* which I had made, and ſome Accounts I had kept of many Cures done in different Times and Places, in order to make up a *Collection* of them, together with ſome others done in this *Hoſpital*.

But to return to the preceding Cure; it is convenient to obſerve, that tho' the Bullet was lodged in the Member, yet no Diſadvantage did thereupon enſue to the Patient: Which made me think for a time, that the Bullet hitting upon the Belly of ſome large Muſcle, might have rebounded the ſame way by which it entered; but I found myſelf out in my Conjecture: For being at *Turin* about a Year and an half after this Cure, I was ſent for from the *Citadel* where I ſtay'd, and when I came,

I found

I found this ſame Perſon whom I had cured of his Wound, who ſhewed me a Scar. I opened it without Difficulty, and perceiving ſomething white and hard, with my Inſtrument I drew out the *Bullet*, which was flat, with a piece of the Thigh-bone ſticking to it: The Ulcer was quickly cured without any Inconvenience, and never returned again.

Had I at firſt Dreſſing found out the Bullet, to the Misfortune of the wounded Perſon, I ſhould have been obliged by Cuſtom and the Rules of our Art, to draw it forth, though it had been, as indeed it was, ſticking in ſuch a part of the Bone as was encompaſſed with the greateſt depth of Fleſh. But for certain, it could not have been got out with ſuch Eaſe, or without Pain and grievous Irritations: Beſides, I queſtion if the Patient, who was of a bilious Conſtitution, could have borne up under ſo tedious and painful an *Operation*, ſeeing an infinite number of Accidents had been occaſioned only by the touches of a little and very ſoft *Tent*. Wherefore I am perſuaded, and am bold to affirm, that it is not always neceſſary to draw forth the *Bullet*, when it is lodged in a Bone that lies deep under the Fleſh; *Nature*, that is much wiſer than we, has more gentle and eaſy ways, and beſt knows the time to free herſelf of what is hurtful to her.

Hippocrates, in the fifth of his *Epidemicks*, relates,

relates, that he drew forth the Head of an Arrow from the *Groin* of a Man, after it remained ſix Years in his Body, without any Accident happening during all that time.

Alexander Benedictus reports, that a certain Man was wounded in the Back with an *Arrow*, the Head whereof could not be got out, being bearded, and two Fingers-breadth in length, which yet, two Months after the Wound was cured, the Patient voided by Stool.

Hildanus, in his ſixth Obſervation, tells us, That he took out the Point of a Knife which had remained two Years among the acute Proceſſes of the *Vertebræ* of the Loins, without producing any Accident there.

Let us now therefore acknowledge *Nature* wonderful in her Operations! Theſe Examples, together with my own Experience and Reaſon, have made me very cautious in the drawing forth *Bullets*, when they are not lodged in Places where they may marr or quite deſtroy the Action of any Part, nor in danger of falling into ſome Cavity. This Cure is of itſelf enough to convince any one of the Advantage, and to eſtabliſh the Credit of my Practice, it having been publickly performed, yea, authorized and approved by many learned Phyſicians and Surgeons of the Court of *Savoy*.

Since that time, I have in ſeveral Places, and in divers Hoſpitals, cured many who have had their Thighs pierced quite thro', without either

ther *Tents* or *Dilaters*, ſave only on the firſt Dreſſing, to ſupport and contain the *Aſtringents* neceſſary to ſtop the Bleeding. This is contrary to *Pareus*'s Method, who, in the 37th Chapter of his tenth Book of *Wounds*, affirms, That Wounds of the Thighs and Legs ought to be kept long open, that the corrupted Membranes may have time to ſuppurate and come away: As if indeed *Nature*, that has brought ſolid Bodies, ſuch as *Iron*, *Bullets*, *Bones*, &c. to the Orifices of Wounds, even after they have been a conſiderable time cicatrized, as hath been formerly obſerved, were not ſufficient to expel ſome Shreds of corrupted Membranes.

But, to avoid corrupting of the Part, the Wounds muſt be ſpeedily cloſed up, *Tents* and *Dilaters* laid aſide, the *Air* muſt be carefully excluded from the wounded Parts, great *Suppuratives* muſt be caſhier'd, and we muſt dreſs as quickly and as ſeldom as poſſible.

CHAP. XXVII.

Of the Knees.

Obſ. 26. IN the Year 1691, when I was at *Pignerol*, a Captain of a Battalion of the King's Regiment, commanded by M. *de Launoy*, was wounded in the right *Knee* with a Bullet, which went in at the outward and middle, and came out at the inward and upper

per Part thereof. He was dreſt for four whole Months by a Surgeon of the Army, very well skilled in his Employ, but followed the common Method: He had alſo adviſed with the Surgeon-Major of *Pignerol*, who had given over hopes of the Cure. The Surgeon that had him under cure, not thinking to make any long ſtay in this City, propoſed to me, after ſo long a time, to undertake the Care of dreſſing him, which I accordingly did.

I found five or ſix Holes in his Knee, all of them filled with hard Tents, and long enough to reach to the Bottom; his Leg and Foot was ſwelled, his Body very thin, and he had a ſlight *Fever*, which had never left him from the firſt time he received his Wound, with perpetual Watchings, and a loathing all kind of Food.

I began to leave out all the *Tents*, and with a ſmall Inciſion at the loweſt part thereof I dilated the Wound. I laid aſide the *Aromatick Wine*, which had been ſo long uſed to no purpoſe, and left off the uſe of an Injection, which being applied twice a Day, by the intolerable Pains it occaſioned, had mangled all the Joint, and cauſed a Communication amongſt all the Holes, which were exactly ſtopt with the Fingers every time that Medicine was employ'd, that it might make ſome ſtay in the Part.

I dreſſed him indeed with the Remedies formerly uſed, but I took Care to apply 'em more conveniently, and to accommodate them better

to

to the nature of the Part, and of the Wound.

When I came to ſee him the day following, ſo ſoon as he ſaw me he embraced me, and ſwore in the Preſence of many Officers, that he was inexpreſſibly obliged to me; and, which was no leſs ſurprizing than true, he told me, that he had ſlept all Night, tho' he had not done ſo ſince the firſt Day of his Wound; that he felt no Pain in his Knee, and believed his *Fever* was gone.

He was ſo encouraged with this good Succeſs, that from thenceforth he thought himſelf cured. For five or ſix Days he was dreſt after the ſame manner once a Day, and afterwards once every other Day, without changing the Ointments and Plaiſters, which had been ſo long uſed before without any advantage. The Cure was completed in leſs than a Month; after which I adviſed him to go into his own Country, and uſe the *Waters*, in order to ſtrengthen the Part weakened by the frequent Dreſſing, and (if poſſible) to enable him freely to extend it.

Reflect. It appears by this Cure, that a *good Method* is the moſt effectual Remedy, and the principal Inſtrument in healing Wounds. If any Man will but be at the Pains to weigh this Caſe, I doubt not but he will be convinced, that the *Tents*, the *Injection*, and the other humid things wherewith the Part was perpetually moiſtened, were the Cauſe of the deplorable

ble condition of the Wound. Now, if ſuch a thing, as it often falls out, had happened to a common Soldier, under the neceſſity of being ſent to an Hoſpital, and treated in the common way, he muſt have endured twenty Deaths by the tedious and painful Dreſſings; nay, it is certain he could never have held up under them, being at the ſame time deprived of all neceſſary Conveniencies, breathing in an unhealthful Air, and having Food neither ſo nouriſhing, nor given him at ſuch ſeaſonable times as a Captain might, who was willing to ſpare nothing that might conduce to the Preſervation of his Life.

The Account I have given of this Cure has nothing in it that is not exactly conformable to the Truth. The Patient himſelf made the ſame Relation to M. *Goiffons*, a very learned and experienced Phyſician of *Lyons*, and chief Phyſician of the King's Armies in *Italy*.

'Tis true, the Wounds of the Joints require very great Care, there being few that are not liable to more troubleſome Accidents; and when the Part is much ſhattered, they are judged mortal. However, I'm very certain great Abuſe is committed in the *manner* of Dreſſing, and this I judged myſelf obliged not to conceal.

The Joints moreover are nervous or tendonous Parts, and known to be of a cold and moiſt Temperament, wherefore they muſt be guarded from the Attacks of the Air; they muſt

muſt not be exaſperated by the Touches of *Tents* and *Dilaters*, *putrifying Medicines* muſt be ſuppreſſed, becauſe they weaken the Parts to which they are applied, and ruin ſuch as are Nervous and Tendonous.

All thoſe liquid things that are commonly uſed are hurtful to the Joints, ſuch as *Aromatick Wine*, *Fomentations*, *Injections*, &c. Such things as are heating and drying are profitable. We muſt endeavour to hinder the Waſte of the Spirits, and ſeaſonably to perform the neceſſary *Diverſions*, obſerving a drying and ſlender Diet, and uſing to the Wound *Sarcotick Medicines*, ſuch as *Balſams*, or *Spirit of Wine*, avoiding alſo long and frequent Dreſſings. If this Method is followed, all the Accidents, which ordinarily accompany Wounds of this nature, will be prevented.

Fabricius ab Aquapendente, in this firſt Part, *Book* I. *Chap.* xlix. treating of *Wounds in the Joints*, ſays, That they are not only extreme hard to be cured, but alſo dangerous and mortal: And he adds, That the Cure is dangerous and difficult, both in regard of their own Eſſence, and alſo of that of the Joints; for *Nature* being the Cauſe that produces Fleſh, and fills up Wounds, is leſs vigorous in the Joints, which are cold in Temper, and deſtitute of Blood and Fleſh, than elſewhere, eſpecially when weakened yet further by a Wound.

Afterwards, in the ſame Chapter, being ſup-

ported by the Authority of *Galen*, in his third Book of *Fractures*, he affirms, That whatever lies under the Skin is advantaged by being covered therewith: And conſidering that the Joints are cold, without Blood, and without Fleſh, he ſays, that their natural Heat is ſoon extinguiſhed, eſpecially when expoſed to the cold Air. Theſe were the Thoughts of this Author, who was accuſtomed to uſe the *Stitch* on ſuch Occaſions, to protect this kind of Wounds from the Injuries of the Air.

He further adds in the ſame Chapter, That Wounds in the Joints ought not to be left open or expoſed to the cold Air, becauſe thereby we run the Hazard of quenching the natural Heat, and of a *Gangrene*; or if this ſhould not fall out, there is ſeldom any Digeſtion in the Wound when ſo treated.

Theſe Parts then, as hath been ſaid, are naturally very weak, deſtitute of Heat, and plentifully watered with Moiſture, which, by reaſon of the abounding Salts, is apt to contract an Acrimony and Malignity, eſpecially when it is retained in the Part with *Tents:* Now this ſame Moiſture, inſinuating itſelf into the Pores of the nervous Fibres, fails not to harden them, and render them callous; from whence it comes, that theſe Wounds often end in *Fiſtula's*. 'Tis obſervable alſo, that if there happen any Change or Diſorder in the Blood, this Humour becomes ſo corroſive,

that it rots the Bones, and deſtroys the Parts where it comes. Long and frequent Dreſſing likewiſe occaſion the like Accidents, becauſe of the Admiſſion of the *Air* that encreaſes the Force of the Acids, and eaſily deſtroys that ſmall Portion of Spirits and Heat with which theſe Parts are furniſhed.

All theſe things are of the greateſt Importance, and well deſerve our ſerious Conſideration: And if *Reaſon* in any thing ought to prevail over *Cuſtom*, 'tis chiefly here, where the Life of Mankind is concerned, which is a thing ſo precious, that it very well merits our moſt particular Care.

And indeed I am of the Mind, that the Authority of ſo famous a Perſon as *Fabricius ab Aquapendente* ought to give ſome Reputation to my Opinion. But before I conclude this Chapter, I will moreover affirm, that if Wounds in the Joints are hard to be cured, and often degenerate into *Fiſtula's*, this is not ſo much owing to the Weakneſs of theſe Parts, as to the manner uſed by moſt Part of Surgeons in dreſſing them.

CHAP. XXVIII.

Of the Leg.

Obſ. 27. ONE *la Grandeur*, who was in the Guards of the Marſhal *de Catinat*, General of the King's Forces in *Italy*, being

at the Siege of *Luxemburg* in the Year 1684, had received a Wound with the *Shiver* of a *Granade*, in the left Leg, which left behind it an Ulcer near the inward Ankle, that had baffled the Care of the Surgeons.

This Man being at *Pignerol*, about the Beginning of the Year 1692, took a Reſolution to have this Ulcer cured, though it had been of a pretty long Standing, and was to him inſtead of an Iſſue. Here he finds a Surgeon pliant enough, who, without foreſeeing what Accidents might follow, or conſidering the evil Diſpoſition of Body, and the bad Conſtitution of the Patient, takes him in hand, dreſſes him, and heals up his Ulcer.

But in a little time after, he had ample Occaſion to repent the Raſhneſs of his Undertaking: For the impure Humours of that unwholſom Body, which had taken thier Courſe that way, not finding any Outgate, were by Degrees gathered together in the Member, and by their Stay, arrived at a pitch of Malignity ſufficient to cauſe a *Gangrene*.

On the Middle and inward Part of the Leg there aroſe a *Tumor*, or Swelling, which was forthwith taken by his Surgeon, who had very little Underſtanding in ſuch Caſes, for a *Phlegmon*; whereupon without further Deliberation he begins with Bleeding, which he repeated five or ſix times.

The Humour retained in the Part not being able

able to come to a perfect Concoction, becauſe of the Defect of Heat and Spirits, made its Malignity appear, and corrupted a great Part of the Leg. The *Gangrene* appeared, and the Surgeon made an opening in the higheſt Part of the *Tumor*, from whence came forth a little fœtid *Lympha*. But the Diſeaſe encreaſing every Moment, both the Patient and the Surgeon were alarmed, and ſought out for ſomebody to adviſe with about cutting off the Member.

I was ordered by the Marquis of *Champlais* who was then at *Pignerol*, to go ſee him, and to employ my utmoſt Care to retrieve him if poſſible, from that miſerable Condition. I made Inciſions in his Leg, from the Knee to the Ancle on the Inſide, and touched it with a very piercing Spirit ſo far as the *Gangrene* reached: I ordered inwardly the ſtrongeſt Cordials, not forgetting *Oriental Bezoar*, and *generous Wine*, which I cauſed to be given him from time to time.

Three Days paſſed over, in ſpite of all I could do, before a Stop was put to the progreſs of the *Gangrene:* The unſeaſonable Bleedings, his Diet, his Fever, and the other Evils with which he was oppreſt, had ſo impaired his Strength, that nothing could be hoped from it. Nevertheleſs, I judged no way would be more compendious and effectual than that of *Sweat*, to reach the Origin of the Evi, and to eaſe *Nature* overwhelmed with

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a World of Impurities: Wherefore I did my Endeavour to procure it; and for that Purpoſe made him take one Evening a gentle *Sudorifick*.

This Remedy had all the Succeſs I could expect; the Patient ſweated a little that Night, which forthwith put a Stop to the Courſe of the *Gangrene*. The Eſchar came away, but very ſlowly, becauſe of the Weakneſs of the Patient. But when this was entirely ſeparated, another Accident ſupervened, which threw us into a new Perplexity: For a large *Tendon* that had been altered by the *Gangrene*, and was waſted by the Suppuration, being joined to its Original by a ſmall Portion only, drew after it the Matter, and notwithſtanding all our Care, formed a very conſiderable *Abſceſs* under the Joint of the Knee, which encreaſing by little and little, overſpread all the hinder Part of the Thigh.

I dilated the Wound, making a freſh Inciſion, wherein I put a very ſmall Dilater, to hinder its cloſing up: I uſed this Dilater for ſeven or eight Days, in which time the Matter encreaſed, the *Sinus* was enlarged, and the Thigh ſwelled and became painful.

I reſolved then to find the lowermoſt or moſt depending Part, that I might there make a Counter-Opening, whereby to give a Paſſage to the Humours, and to hinder their Abode in the Part: So I made a Mark without, upon

upon the Place I pitched on for that Operation.

Nevertheleſs, I was willing firſt to try all other means I could think on: And accordingly I began to leave out the *Dilater*, which I had only kept between the Lips of the Wound, not ſuffering it to paſs into the Cavity of the Ulcer: And thus I dreſt the Wound only with a Pledgit, and a Plaiſter, and ſuch a Bandage as might keep them on.

The next Day, very little Matter came away; and the Day after that, yet leſs: The ſwelling, and Pain of the Thigh were diminiſhed; the large and deep *Sinus* was filled up in four or five Days. Thus the Operation I deſigned was prevented, and the Patient cured in ten or twelve Days after.

Reflect. 'Tis no wonder, that very many able Surgeons have been deceived, without perceiving it, in the too frequent Uſe of theſe fatal Inſtruments, *Tents* and *Dilaters:* for I who had bid them open Defiance, could not keep myſelf from being miſtaken in uſing them, and have experienced their pernicious Conſequences. Who can imagine that a thing ſo ſmall as this *Tent* was, could occaſion ſuch conſiderable Accidents?

I was much amazed at this Event, and thereby confirmed in my Averſion for *Tents* and *Dilaters*, reſolving then to uſe more Cau-

tion than ever, if I ſhould at any time be neceſſitated to uſe them.

I willingly own, that the Collection of Matter under the Thigh was not occaſioned by the *Tents:* They are not always the Cauſe of Impoſtumations, nor of the Accidents that follow. But, after all, their Uſe contributes much to delay the Cure, and to render the Symptoms more obſtinate, as may be ſeen by the preceeding Cure; for after the widening of the Sore, a free Paſſage being given, the Matter would have been diſcharged infallibly, and without Intermiſſion, if it had not been hindered by the *Dilaters*; which, how little ſoever, was yet ſufficient to obſtruct its Paſſage.

I hope then I ſhall not be thought to have acted without Ground, in doing my Endeavour to put down the Uſe of *Tents*, ſince it is attended with ſuch pernicious Conſequences. 'Tis eaſy to judge, that if a little *Dilater*, about the Bigneſs of a middle ſized Bean, was able to occaſion ſuch troubleſome Symptoms, a long and thick one muſt have cauſed much more Irritation and Diſorder. If I had continued to uſe that extraneous Body yet eight Days longer, it would have brought on a new Mortification, which at that time might have laid the Patient in his Grave, conſidering the deplorable Eſtate he was reduced to by his former Diſorders.

CHAP.

CHAP. XXIX.

Of another Hurt in the Leg.

Obſ. 28. IN that ſame Year, when I was in the Hoſpital of *Briançon*, there was brought thither a Soldier of the Colonel's Company in *Catinat*'s Regiment of Foot, who had both the *Bones* of his *left Leg* broken, together with a *Wound* two Fingers breadth below the Garter. This Accident befel him upon the Works of the aforeſaid City.

The lower Part of the *Tibia* came out at the Wound, and paſſed over its upper Part two Fingers breadth; wherefore we were neceſſitated to make a vigorous Extenſion, before we could put all things in their right Place. We joined the Lips of the Wound, and dreſſed with Pledgits only, having made an Embrocation, to diſſolve a very conſiderable Bruiſe, to which we applied our *Diapalma* diſſolved. Two or three Fingers breadth above the Fracture, we encompaſſed the Member with a little Roller, uſing another in like manner below it; the ſpace between we filled up with double Compreſſes dipt in Wine or Brandy. Under the Leg we uſed a Paſtboard, to hinder its bending at the Fracture, and over this the Bandage with eighteen Tails. In fine, having made all faſt with the Juncks,

and their Furniture, Diverſions were made in due time, and a Courſe of Diet ordered.

By reaſon of the Contuſion, we were forced to dreſs once a Day, which we did without undoing the Rollers, or giving any trouble to the Member; and when I ſaw the Bruiſe, from which I had feared ſome Accidents, begin to be diſſipated, he was dreſſed but once in 2 Days. On the twelfth Day we took off the Rollers, that we might ſtreighten them a little; which we did in ſuch a manner, that the Bones remained ſtreight and unmoved. The Wound then had begun to fill up, and there was not the leaſt Exfoliation, nor Separation of any Bone.

The Wound was compleatly cured in 19 or 20 Days; after which we uſed the Rollers, with Splints and the Juncks upon the Place of the Fracture.

The Patient was pretty fortunate in this, that during the Cure he had not felt the leaſt inward Diſorder, notwithſtanding the Unwholſomneſs of the Beds in the Hoſpitals of the Army. After 40 Days the Juncks were laid aſide, and he began to walk with Crutches, and in a Month after he returned to the Regiment.

Reflect. By this Cure, which was publickly performed, it appears, that it is not abſolutely neceſſary to widen the Wound in *complicated Fractures*, as ſome are of Opinion; for ſo ſoon

as

as it is dilated, the Cavity is filled with Matter that ſlides in between the broken Bones, and being once there, it is impoſſible to bring it away, or hinder its ſtay; and thus it alters and rots the Bone which it touches. It dilutes and depraves its nutritious Juice, mixing with it, and rendring it unfit for breeding a *Callus*. In fine, it cauſes Exfoliations and Separations of Bones from the Extremities of the Fracture, and oftentimes ſliding along the Bone upon the *Perioſteum*, produces *Abſceſſes* and *Sinus's*, very hard to be cured.

The Patient is all this time in very great Danger, eſpecially in an Hoſpital, where he is every Day tormented once, and often twice, with long and painful Dreſſing. The Part is weakened, and the whole Body waſted away. Beſides, 'tis obſervable that but few Fractures that are accompanied with a Wound are ever cured in *Hoſpitals*, eſpecially when dreſſed according to the ordinary Method; and above all, thoſe of the *Thighs* and *Legs*, which confine the Patient to his Bed, are moſt ſeldom cured.

Among all the *Ancients* that I have read, I find none that favours my Method of treating of *complicated Fractures* more than *Fabricius ab Aquapendente*; for in his firſt Part, Book 4. Chap. 9. and in many other Places of his Works, he is not for dilating ſuch kind of Wounds, but leaves the Separating of Bones to *Nature*'s Conduct: And tho' he expects

that ſome Splinters of Bones are to come away, yet he fails not to ſtitch up the Wound; for, ſays he, *Nature* will never cure a Wound in that Place where a Bone is to be excluded; wherefore we ought to endeavour to heal up ſuch Wounds; which we ſhall not be able to effect, unleſs Nature judge it convenient, and find that their remaining open would be unprofitable.

CHAP. XXX.

Of a third Wound in the Leg.

*Obſ.*29. ON the 15th of *June*, 1698. a Maſon called *la Pierre*, was ſent from *Mont Dauphin* to the Hoſpital at *Briançon*, who labouring on the Fortifications of that Place, had the inner Bone of his right Leg broken about the middle, with a Wound ſix Fingers breadth long, and two in width. This was one of the moſt conſiderable Fractures that had come under our Care in this *Hoſpital*, and yet one of thoſe that were ſooneſt cured.

After we had reduced the Fracture, we joined the Wound, and dreſſed it with a good Incarnative. We fomented where it was neceſſary, and put on the Dreſſings in the manner above deſcribed; we performed the uſual Diverſions, and left all untouched for three

Days. We dreſſed it a ſecond time after the ſame manner, letting it alone again other three Days. In fine, at the fourth Dreſſing, that is, upon the twelfth Day from the firſt Dreſſing, the Wound was quite filled up, and more than half skinned over; wherefore ſtraightway, as gently as was poſſible, we took off the Bandage with eighteen Tails, uſing inſtead thereof Rollers with light and eaſy Splints, upon the Fracture; and no Accident happened during all the time. In forty Days ſpace he was able to walk with Crutches, and theſe he laid aſide ſoon after.

Reflect. This wounded Man was ſhewn as a Prodigy to all who came to the *Hoſpital*. Suppoſing this Cure had been the only one I had ever performed this Way, the Succeſs I had therein had been ſufficient to convince me of the Excellency of this *Method*, and to engage me to follow it during my Life. But ſeeing it is moreover ſupported and approved by *Authors*, and confirmed by many other Cures of the like Nature, all the pretended Reaſons that may be brought againſt it will prove too weak to overthrow it, and will be ſlighted by all Men of good Senſe, and Lovers of Truth. And whatſoever may be ſaid in order to cenſure it, will be ſo far from leſſening its Merit, that it will rather heighten the Eſteem thereof.

In

In the laſt Part of this Work, where I treat of Fractures that are attended with a Wound, I give ſome Reaſons further to juſtify this Way of Practice.

CHAP. XXXI.

Another Caſe whereby this Way of dreſſing complicated Fractures *of Legs is confirmed.*

Obſ. 30. A Soldier called *la Violette*, of the Regiment of *Nevernois*, and Company of *Bonal*, was brought to the King's *Hoſpital* ſettled at the Abby of *Oulx*, on the firſt of *May*, 1696. He had two Wounds upon the *Os Sincipitis* of the right Side, with the Bone uncovered; all his Face was bruiſed; three of the true or upper Ribs on the ſame Side were forced inwards; he had many Bruiſes on his Body; his right Arm was out of Joynt, and the Hand all torn; both his Legs were broken and ſhattered, the Right one without a Wound, and the Left with one. All which Havock was cauſed by a Fall from a very high Rock, near the Barrier of *Fort d'Exille*.

All his Wounds were dreſſed but thoſe of his Head, which were not obſerved till the next Day. His Arm was reduced; his right Leg, which was broken about three Fingers breadth above the Ancle, was dreſſed with the circular Ban-

Bandage; the left with that of eighteen Tails; the *Tibia* was broken to pieces in the middle; many of the Splinters were out of their Places, being unlooſed from the Bone at one end, and ſo could not be brought together, and altogether ſet right in the firſt Dreſſing. The Oriſice of the Wound was not large, and we did not dilate it; it bled indifferent much for the three or four firſt Days, for I let the bleeding ſtay of it ſelf, without uſing Aſtringents. I let him Blood many times, both in regard of the Contuſions and Fractures, and alſo becauſe of the forcing in of the Ribs, which occaſioned a great difficulty of Breathing. I cauſed a hole to be made in the Straw Bed and Cloaths, which was ſewed round, to afford him the Conveniency of going to Stool without being removed, it being impoſſible to touch him without putting him to grievous Torment. The Wounds in the Head were ſoon healed without any apparent Exfoliation; the Bruiſes in his Face were removed; his Ribs were reſtored by means of ſticking Plaiſters; and the difficulty of Breathing continued but for ſix or ſeven Days. The Diſlocation of his Arm, and the Wounds of his Hand gave us no trouble. The ſimple Fracture, tho' the Bone was ſhattered, was not followed with any Accident. The Wound of the compound one was compleatly healed in 8 or 9 Days; after which we put little Bolſters upon the protuberant Pieces of the

the ſhattered Bone, tying them on with Rollers, which had ſo good Succeſs, that at the next Dreſſing no inequality was to be ſeen. About the fortieth Day after receiving his Fall he was able to ſtand up with Crutches; and his left Leg, that had the complicated Fracture, was ſtronger and more clever than the right, that had the ſimple one only; which was much admired by many.

Reflect. This Cure might be of excellent Uſe to eſtabliſh the Credit of the former, if there were any need thereof. That which makes it remarkable is, the two Fractures of a different kind in the ſame Perſon, one of them being complicated, which yet was ſooneſt cured, and the Patient was able to uſe the Leg wherein it was, before the other. M. *Davijan*, and M. *Michellet* the King's Phyſicians in this Hoſpital, knowing Men, and Perſons beyond all exception, were Witneſſes of what I have here related, and know that I have added nothing but the Truth, and believed that this was the firſt time that a complicated Fracture was dreſſed after this manner in this Hoſpital, tho' it be of a pretty long ſtanding. Theſe ſame Gentlemen have oftentimes ſeen Wounds no leſs conſiderable than theſe, brought by the ſame Method to a ſpeedy and happy Cure.

I be-

I believe indeed, that the ſtrong Conſtitution of the Patient, conduced much to the good Succeſs of the Cure; but it is no leſs true, that the requiſite Diverſions were not delay'd, whatever might have occaſioned troubleſome Accidents was removed by this means; beſides, he was gently treated in Dreſſing, and the Sores were not exaſperated, ſo that in the firſt Days he felt but a very ſlight Pain: He reſted well, and was able to take, with much eaſe, ſuch Food as was proper for him.

You will very ſeldom ſee a wounded Perſon in ſo deplorable a Condition as this Man was. All the Parts of his Body were either wounded or bruiſed; had but any Accident followed, Death had been unavoidable, and our Care in vain: And if the *Diſſolvents* and *Diaphoreticks* had not unloaded the Parts in promoting the Circulation of the Blood, and the Courſe of the Humours, by a gentle and inſenſible Tranſpiration, I doubt the Event had neither been ſo ſudden, nor ſo deſirable.

'Tis well known, that in Practice there is a great difference made between Fractures not accompanied with a Wound, and thoſe that are: In many Places the latter are judged incurable; eſpecially thoſe of the lower Extremities, that indiſpenſibly oblige the Patient to keep his Bed.

I don't

I don't queſtion but very many, eſpecially the *Admirers* of *Antiquity*, will find fault with this *Method*, and reject my *Rules*; but may they charitably oblige the Publick with more eaſy and more ſure *Ways*, and confirm them with *unqueſtionable Experience*, and I promiſe them to be among the firſt that ſhall embrace their Party.

CHAP. XXXII.

Of the Feet.

Obſ. 31. ON the 25th of *June*, in the ſame Year 1696. an *Iriſh* Gentleman, called *John Donoughal*, Nephew to Lieutenant Colonel *Athlone*, was brought to the Hoſpital of *Briançon*, having been wounded at an Action in the Valley of *Barcelonetta*. He was ſhot into the right Foot, and the Bullet entring on the upper and foremoſt Part of the *Metatarſus* towards the Side, was lodged between two Bones of the ſame Part.

A Surgeon upon the Spot did whatever he could to draw out the Bullet by the ſame Way it entred, but his Endeavours proved fruitleſs.

The firſt Day that I dreſſed it, after I had conſidered the Wound, and obſerved the Way of the Bullet, I found it could not be got out, unleſs a *Counter-Opening* were made; which ac-

accordingly was done, at the middle and hinder Part of the *Metatarſus*, and the Bullet was drawn out with very little Pain.

The Wounds were dreſſed according to our Method, with Embrocations over all the Part: Diverſions were not omitted, and he was dreſſed but once a Day with our ſimple Remedies, and the Plaiſter of diſſolved *Diapalma*.

The *Eſchar* being ſeparated, no great *Suppuration* enſued; no Bones came away, at leaſt that we could obſerve. Henceforth he was dreſſed but every other Day, and was cured in thirty Days, or thereabouts; after which time he returned on foot to his Regiment.

Reflect. 'Tis almoſt univerſally known, that *Wounds* of the *Extremities*, accompanied with a *Fracture*, are *tedious* and *troubleſome* to be *cured*. The *Tendons* and *Nerves* that here abound make theſe Parts of a quick Senſe, and render the *Wounds* therein obnoxious to grievous Accidents; and therefore it is that they require to be dreſſed with much *Gentleneſs*, and *Remedies* particularly ſuited to them. I have elſewhere remarked, that *Tents* and *putrifying Medicines* are extreamly hurtful to *Nervous* and *Tendonous* Parts; wherefore I ſhall ſpeak no more of them. I ſhall only here take notice, that ſome prepoſſeſt Perſons have had the Confidence to ſay, that this Way of Dreſſing, ſo *gentle* and ſo *eaſy*, has ſomething of Raſhneſs in

in it; that it is very dangerous to omit the Circumſtances obſerved by the Ancients; that their Rules were not laid down without good Reaſon; and that their Method, in fine, ought to be put in practiſe among the Soldiers. Though *Reaſon* and *Experience* are both on my ſide, yet I am ready further to maintain, that this Method has nothing of *Temerity* in it, in regard it follows the Footſteps of *Nature*, which ought ever to be our Guide in the curing of Wounds. We can never go aſtray if we follow her Conduct; and if we ſwerve from her Paths, we can't but fall headlong into Dangers.

Beſides, it is no leſs neceſſary to be an able Surgeon, and expert in Practice, in order to manage a Cure according to this Method, that appears ſo eaſy, rather than uſe the common way of Practice, which is full of ſo many Circumſtances that are ever unprofitable, and oftentimes pernicious. And we may reaſonably preſume, if our *Method* has been ſo ſucceſsful, when practiſed on Soldiers dieted and dreſſed in an Hoſpital where the *Air* is oftentimes *infected*, that it will be much more ſo when uſed towards Patients that have all the Conveniences of *Life*, and who breathe in a pure *Air*.

CHAP. XXXIII.

Of the Feet.

Obſ. 32. WHEN I was at *Lucerne*, in the Year 1688. a Soldier of the Trained-Bands was brought to the Hoſpital there, who had received a Shot in his right Foot that was pretty remarkable for the Way of the Bullet, which was of a very ſmall ſize. It entered at the inward and middle Part of the great Toe, and came out at the end of the little Toe, no Excoriation appearing either above or below.

The firſt and ſecond Bones of the great Toe were broken, the ſecond of the three next were entirely cruſhed to pieces, and the laſt of the little Toe in like manner.

When we parted the Toes one from another, a great many little Pieces of Bones were to be ſeen, which ſeemed only to hang by a Thread. I firſt ſet to rights every Bone by it ſelf, and afterward ſet them in order one with another. Between every Toe and its Fellow, I gently ſlipt in a little Piece of Linen dipt in *Spirit* of *Wine*; and I made ſmall Compreſſes pretty large and longiſh, which I put above and under the Toes, in form of Splints, being wet alſo with *Spirit* of *Wine*. I wrapt all up in Linen, without Ointments

or

or Plaiſters, and ſupported the Foot with a Sole, ſuſtaining all with an eaſy Bandage.

I took off the Dreſſings after two Days, and without removing the little Pieces of Linen between the Toes, I fomented all the Part with Spirit of Wine, and dreſſed it as before. The Suppuration was but very ſmall; and indeed it was with deſign to prevent it, that I uſed nothing but the Spirit of Wine, which was the only Remedy I employed to compleat the Cure. This was effected in about three Weeks time, without the coming away of the leaſt bit of the Bones, tho' they had been entirely ſhattered to pieces.

Reflect. All Experience aſſures us, that 'tis, *Nature* and a *good Method* that effects the Cure and not at all either the great Labour, or vaſt Charges beſtowed upon it. If I had uſed in this Caſe the ordinary Ointments and putrefying Medicines, they would have occaſioned a plentiful Suppuration, whereby the Splinters of the Bones had been looſened and brought away, the Cure had been delayed, and poſſibly the Toes loſt; which had been enough to render the Patient lame for his Life.

Tho' this Cure is not of great Conſequence, yet the Conduct therein uſed may ſuffice to ſhew, that the Bones do eaſily enough re-unite, when they enjoy the neceſſary Repoſe, when the Air has no time to alter them, or to exert its

its Efficacy in the Wound, and when the uſe of ſuppurative Remedies is laid aſide, which are ever hurtful, as has been above obſerved. And I will here add, as to the laſt mentioned Medicines, I know no kind of Wound, in what Part of the Body ſoever, that does abſolutely ſtand in need of them.

But leſt I ſhould weary my Reader with unprofitable Repetitions, I ſhall content my ſelf with having deſcribed the two preceding Cures of *Wounds* in the *Feet*; tho' in this *Hoſpital* we have had a great Number of this nature paſs thro' our Hands, that have had a moſt *happy* and *comfortable Event*.

CHAP. XXXIV.

The Concluſion of the Second Part.

IF my weak *Reaſonings*, and the *Authorities* I have adduced, together with the *Experiences*, which I have faithfully related, ſhould not prove ſufficient to convince ſome Perſons of the Excellency of my *Method*, I have only one *Requeſt* to make, to ſuch as ſhall withhold their *Approbation*, which is, that they would make a *Tryal thereof* themſelves.

I could have recited a very great Number of Cures, like unto theſe contained in this 2*d* Part. I could have deſcribed the Cures I have performed on wounded Perſons in my *Travels*, or

in

in the *Army*, where Occaſions of this nature daily preſent themſelves, becauſe of the Accidents that ordinarily fall out; ſuch are thoſe of the Valley of *Barcelonetta*, and the Battle of *Marſeilles*, fought *Oct.* 4. 1693. But this would have been, for the moſt part, to ſay the ſame things over and over again, all theſe Cures being managed almoſt after the ſame Way.

I ſuppoſe, it will be eaſily enough believed, that I could have enlarged the Bulk of this Volume with many other *Obſervations*, conſidering its truth, that in four Years time, that I have been in this Place, more than 3000 Perſons have gone from it compleatly cured.

Some there are, who, not able to diſcover the genuine Cauſe of the deſirable *Succeſs*, that has attended the Cures done in this Hoſpital, and willing to blaſt the Reputation of a *Method* to which only they were owing, have attributed all to *Chance*, and have given out that we have been accompanied with an extraordinary *Good Fortune*: as if, forſooth, the curing of Wounds were like a Game at *Cards*, or throwing of *Dice*; or as if blind Chance had any thing to do where Experience and good Conduct are ſo indiſpenſibly neceſſary.

I have hitherto only treated of ſuch Wounds as were very conſiderable and were almoſt all ſomewhat complicated: From whence I hope it will be believed, that ſimple Wounds, wherewith I was unwilling to fill up this Part, were cured

cured after this Method, with much more Speed and Eaſe than thoſe here related.

It may poſſibly be thought ſtrange, that (in Cures of ſingle Centinels, deſcribed in this ſecond Part) I have declared I uſed, on different Occaſions, the *Balſam* of *Peru*; which is ſcarcely probable, conſidering the Place, and Condition of the Perſons. This I own, and do nevertheleſs aver, that I have ſaid nothing but Truth: But when it is conſidered, that the Duke of *Savoy* ſent his Apothecary to *Lucerne*, with Orders to ſupply himſelf from thence with whatever was moſt precious, and to furniſh a complete Shop of Medicines, for the Hoſpital of that Place, what I have ſaid will eaſily be believed, ſince not only that Remedy, but alſo *Pearls*, *Bezoar*, and the moſt coſtly Cordials, were bought up, and uſed freely without diſtinction.

THE Hoſpital-Surgeon:

PART III.

Exhibiting a general View *of the* Author's new Way *of* Practice, *not only with reſpect to* Wounds, *but in other* Caſes *belonging to* Surgery; *and a* Deſcription *of the* ſimple Remedies *he uſes: With ſome* Obſervations.

CHAP. I.

The Deſign of this Part, and what it contains.

ALTHOUGH in the preceding *Parts* of this Book, where I declare the *Advantages* and *Excellency* of this *way*, confirming the ſame by *Reaſon*, *Authority*, and manifold *Experiences*, I have ſufficiently made known my *Practice*, with Relation to *Wounds*; yet conſidering it is there delivered without any Method, and with frequent Interruptions, as being interwoven with my Reaſonings and Obſervations, I ſhall, for the Eaſe and Advantage of my *Reader*, but eſpecially of the *young Surgeon*, in this third *Part*, give a general *Proſpect*, as it were at once, of all the Parts of my Practice; and that not only in what concerns *Wounds*, to which I principally confined myſelf in the two former *Parts*, but alſo in other Caſes, that fall under the *Surgeon*'s Care. I will

I will likewiſe here, ingenuouſly, and without Reſerve, give a Deſcription of the *ſimple* and *eaſy Remedies* which I have uſed as well in the Cure of *Wounds* as in that of other *Diſtempers* that come within the Juriſdiction of *Surgery*; the happy and comfortable Effects that I have ſo frequently ſeen produced by them is enough, in my Opinion, to recommend them to the Eſteem and Uſe of the wiſe and unprejudiced Artiſt, who candidly deſigns the Good of ſuch of his fellow Creatures as fly to him for a Refuge in their Diſtreſs.

In fine, I will as I go along, deliver ſome *Obſervations* very inſtructive and uſeful, to illuſtrate and confirm the Subjects, for the Sake of which they are inſerted: To which, when neceſſary *Reflections* ſhall be ſubjoined; I ſhall begin with *Tumours* and *Abſceſſes*.

CHAP. II.

Of Tumours *and* Abſceſſes.

MOnſieur *Bertrand*, a Phyſician of *Marſeilles*, in his *new Reflections* upon *Acid* and *Alkali*, gives, in few Words, a very clear and exact Notion of the Nature of *Tumours*. But I being confined, by my propoſed Deſign, only to declare my Practice with Reſpect to them, thoſe who deſire to ſearch into their Cauſes, and examine their Differences, muſt conſult ſuch Authors as have written upon them.

The *Moderns* are not well agreed with the *Ancients* in this Matter; for ſince the *Circulation* of the *Blood* has been found out, the true Cauſes of many Accidents, that fall out in the Cure of *Tumours*, have been diſcovered, which the Ancients explained in a manner altogether different.

Now in regard a Diſeaſe, after its Nature is underſtood, is eaſy to be cured, if one uſes but a little Application of Mind, the young Surgeon will do well to ſearch into the Cauſes of *Tumours*, in the Works of the Moderns, where he will likewiſe find ſuitable Remedies. *Etmullerus*, in his *Medicinal Surgery*, deſcribes a great Number of very proper Medicines; as alſo M. *Verduc*, in his Book called *Pathologie de Chirurgie*.

This only I will ſay by the by; that the *Tumours* that are accompanied with Inflammation, ſuch as a *Phlegmon*, and an *Eryſipelas*, have more need of *Diſſolving* than *Repercuſſive Medicines*. I was confirmed by Experience in this Opinion, and the Truth thereof at this Day is not doubted; tho' at the ſame time it is contrary to the Rules of the Ancients. For a *Phlegmon* proceeding from an internal Cauſe, according to the Moderns, is nothing elſe but an Obſtruction of the Veſſels; and that from an external Cauſe may be accounted of the ſame Nature. This Accident does very commonly happen in *Gunſhot-Wounds*, under which Head we ſhall take notice of it.

Accord-

According to theſe Principles, *Reſolvents* are abſolutely neceſſary, in order to anſwer the firſt Intention, which is, to diſſolve or cauſe to tranſpire the accumulated Humour.

An *Eryſipelas*, or St. *Anthony*'s Fire, according to theſe ſame Moderns, is cauſed by a ſubtil and volatile *Acid*, diffuſed over the *Skin*, or the *Muſcles*: *Diſſolving Medicines* are alſo proper in this Diſeaſe: So that *Spirit of Wine* prepared with *Camphire*, the *Sugar* of *Lead*, or *Elder Vinegar*, may be uſed.

The Accidents that follow upon a great *Eryſipelas*, are frightful and violent. I remember, that when I was at *Lucerne*, a certain Perſon who had a *Fever*, was ſeized with a like *Diſtemper*; it reached from the middle of the *Thigh* to the *Heel*; he was not ſo wiſe, as to give us notice of it in time, but kept the whole Part out of the Bed for a whole Night, in a pretty cold Seaſon; which cauſed ſuch a Repercuſſion, that on the Morrow all the *Part* was *gangrened*, and all our Care and Diligence could not prevent its entire Mortification; for in a very little time the *Gangrene* turned to a *Sphacelus*. Before he died, one half of his Body was entirely corrupted and putrified. I never ſaw ſo dreadful a Sight, or ſmelt ſo intolerable a Smell; for not only the Hoſpital, but even the whole City was in danger of being infected thereby, when he was yet alive.

When an *Eryſipelas* will not yield to diſſolving Remedies, we ought without delay to

have recourſe to *Scarification* of the whole Part, to give a Paſſage to the Blood; and moreover, we ſhould foment the whole Part with *Spirit of Wine* prepared with *Camphire*, or ſome other ſpirituous and piercing Liquor: *Vinegar* wherein *Sal-Armoniac* is diſſolved, or *common Salt* when that is wanting, may alſo be uſed. But after all, it is not to be thought that repelling Medicines are altogether to be laid aſide; only 'tis fit we know how to uſe them on ſuitable Occaſions.

In the Year 1693 M. *Dechamp*, then Commander of the 3d Battalion of *Sault*, but now Lieutenant Colonel of the ſame Regiment, having an *Eryſipelas* in his Leg, had been treated with the *diſſolving* Remedies preſcribed by the Moderns, for three Weeks time, without perceiving any Advantage thereby. Whereupon he cauſed himſelf to be brought to this Town, that he might be under my Care; and being informed by him of what Remedies had been uſed, I thought fit to apply *Repercuſſives*; and in eight Days after, he departed entirely cured. In order to a prudent Uſe of Remedies, the *Age*, and the *Conſtitution* of the Patient, the *Seaſon* of the Year, and the *Nature* of the *Part* affected are duly to be conſidered. But I ſhall not inſiſt further upon generals.

Now as for *Abſceſſes* of all Sorts, which have come under our Hands in this Hoſpital, and have been cured with an *Expedition* that may appear incredible, I will only ſay this; that judging

judging it ſufficient to make a large opening in them, I left the reſt to the ſage Conduct of *Nature*; not forgetting however general Remedies, and the ordering of *Diet*. But as for the dreſſing of the *Ulcer*, I only uſed a ſimple *Pledgit*, covered with the moſt common Medicines; and ſometimes in Caſe of a Cavity, ſmall Compreſſes for expelling the Humour, with a Plaiſter, and a Bandage ſufficient to keep it on.

The great Number of thoſe who have been treated, in this Hoſpital, according to this Method, and cured in a very ſmall time, is beyond Belief.

When the *Orifice* is not ſtopt up with an *extraneous Body*, 'tis evident that the *Matter* can make no ſtay in the Parts, but will come away without Intermiſſion; and the Parts, that were thereby kept at ſome diſtance from one another, come together, and at the ſame time do expel whatever may there be contained, and leave no empty Space for the Collection or Abode of what is uſeleſs and inconvenient. Hence the Parts are united, *Nature* acts at her Freedom, whoſe Balſam generates Fleſh better than all the Remedies in *Pharmacy*.

I hope I may preſume, that none will think I would have continued in the Uſe of this *Method*, for ſo long time, had I not experienced its deſirable Effects, on a thouſand Occaſions. And I could ſafely take my *Oath*, that never any the leaſt Accident happened to any of

thoſe who were dreſſed after this manner. Every one may believe as he thinks good of what I ſay; but I dare aver, that I am much more careful that what I ſay ſhould be true, than that it ſhould be perſuaſive.

As for *ſcrophulous Tumours*, or a *Bronchocele*, I have not found any Remedy ſo ſucceſsful as *Mercury*; and, I believe, in the Opinion I have of it, I am not ſingular; the many Experiences I have had thereof, make me to value it much. He that well underſtands the *Cauſe* and *Nature* of theſe Evils, and withal the *Vertues* and *Uſes* of the Remedy whereof I ſpeak, will agree with me, that this only can effect a *compleat Cure*. But all conſiſts in the diſcreet uſing of it. The beſt of Remedies, and the moſt exquiſite Inſtruments, are ever dangerous, when managed by Surgeons that are void of Knowledge and Experience. I may poſſibly, one Day, make known to the Publick, the Way which I have ſucceſsfully uſed, to bring to a perfect Cure a great Number of ſuch *Maladies* as I now ſpeak of, and thoſe the moſt obſtinate and inveterate of their kind.

CHAP. III.

Of a Gangrene.

A *Gangrene* is an Accident that occaſions very much trouble in the Hoſpitals of the Army. I ſhall ſay nothing of its Cauſes,

M. The-

M. *Thevenot* has fully treated of this Matter; and M. *Cauſape*, in his Book of *Fevers*, has given a brief Diſcourſe of it upon different Principles. Young Surgeons may apply themſelves to the reading of them, for their Inſtructions.

So omitting this, I ſay, that here we have no time to loſe, but muſt immediately apply our ſelves to ſtop its *Progreſs*, and to avoid the fatal *Conſequences*. When the great Veſſels are thereby entirely intercepted, in a Member that may be cut off, the beſt Way is to come ſpeedily to *Operation*, without attending a *Sphacelus*; for the *Gangrene* goes on ſo ſwiftly in a ſmall time, that the ſound Parts are aſſaulted before ever we can well know what we are doing.

A *Gangrene* often happens in *Gunſhot-Wounds*, if it is not prevented; as alſo in Bruiſes; in Wounds made by cutting or bruiſing Inſtruments; and alſo after a great *Phlegmon*, or an *Eryſipelas*; and ſometimes by an Extremity of Cold. This laſt kind is very frequent about the end of Campaigns. The Remedy we uſed was *Spirit* of *Nitre*, or *Aqua fortis*, wherein *crude Mercury* to half the Quantity is diſſolved. With this we have eaſily enough ſtopt Mortifications in the Feet or Hands, applying over all the Extent of the *Gangrene* a little Piece of Linen wet in this Liquor. And when this can't be had, other *Spirits* may be uſed that are much of the ſame Quality.

This Remedy I have found to be ſo gentle, and ſo quick in its Operation, that I never uſe any other, in any Sort of *Gangrene*. It admirably well ſeparates what is dead from what is alive, without ſcarifying or cutting; unleſs when the Miſchief lies very deep, where theſe violent Remedies are abſolutely neceſſary.

Cordials and *Wine* ought never to be omitted in ſuch Caſes, to fortify and defend the natural Heat from an Enemy that oftentimes aſſaults it in its very Principle. When the Body is Plethorick, *Bleedings* and *Clyſters* are no ſmall help. In the beginning of a *Gangrene*, to *topical* Remedies *Diverſions* may be added, without forgetting to order the Courſe of *Diet*, which alſo demands our particular Care. So ſoon as I have diſcovered a Diſpoſition to *Mortification*, I have ſometimes uſed *Cataplaſms* and *Emplaſticks*, when the Inflammation would allow, to recall the *Spirits*, and to give *Nature* Time and Strength to reſiſt and to overcome, by the force of the Heat concentrated, the Matter already endowed with a malignant Quality, or juſt ready to become ſuch; and I have often ſeen ſuch kind of Maladies end happily in an *Abſceſs*, with a laudable Concoction.

When a *Phlegmon* that enſues upon a Wound is violent and obſtinate, and will not yield to *Diverſions* and *diſſolving Medicines*, we muſt without delay ſcarify the Part, ſo far as the *Tumor* reaches, to give an Outlet to the *Blood* that

that is extravaſated, and oftentimes corrupted, and to diſcharge and relieve the Part, that otherwiſe might be ſuffocated by the Fulneſs and Obſtruction, bathing it afterwards with *Spirit of Wine* and *Sal-Armoniac:* For if we be remiſs in our Care, the Enemy that is concealed within is privately at work; and when the outward Signs of the *Gangrene* appear, all that is under the Teguments is often found corrupted, and in irremediable Diſorder.

An *Eryſipelas* is yet more formidable; for it is more ſudden, and more nimble in its Operation. It is the part of a prudent Surgeon to take heed of it in time. A Fomentation with *Spirit of Wine*, *Unguentum Ægyptiacum* and *Sal-Armoniack* may be uſed.

Many Authors have deſcribed a great Number of Remedies very proper in the Cure of *Gangrenes*, but in the Hoſpitals of the Army there is not always the Conveniency of making a Choice; wherefore it is good to know how to uſe ſuch as are ſimple, and eaſy to be found. Beſides, 'tis not always the moſt pompous *Compoſitions* that are of the greateſt Efficacy.

In this Sort of Diſtempers, it is very neceſſary to make uſe of *inward* Remedies, as well as *topical* ones; ſuch as ſtrong *Cordials*, *Venice Treacle*, *Confection* of *Hyacinth* and *Alkermes*, and *Alexipharmicks*, to which a little *Camphire* may be added. *Wine* ought to be numbered amongſt the Cordials; it is one of

theſe which I very frequently uſe in *Hoſpitals*. *Scordium* taken inwardly, and applied outwardly upon the *Gangrene*, is a Remedy not to be deſpiſed.

A great many Remedies, very proper for a *Gangrene*, may be ſeen in *Etmullerus*: He has alſo given an Account of the Way uſed by the *Germans*, to ſeparate the mortified from the ſound Parts, which is done with the *Butter* of *Antimony*. This is the Remedy they uſe in the Amputation of Members, to avoid the uſe of the diſmembring Knife, and of *Aſtringents* that burn and cauterize.

This Remedy might be uſed with the ſame Succeſs as the *Spirit of Nitre*, which I have ſpoken of before; there is no Difference but what is gradual. But whether the one or t'other be uſed to ſtop a *Gangrene*, a ſimple Digeſtive will afterward be ſufficient to haſten the falling of the *Eſchar*, and finiſh the Cure.

CHAP. IV.

Of Ruptures.

RUptures are very frequent among the Soldiers. The *Toil* they undergo, and their *Manner* of *Life* do equally contribute to bring them to that miſerable Condition, by reaſon of which there is often a neceſſity to ſend them to Hoſpitals.

My

My Deſign in this Place, is only to give an Account of the Way I uſe to help this Sort of *Diſtemper*; for I am convinced, and no Body doubts of it, that a *Truſs* is the moſt ſure and moſt infallible Remedy to hinder the falling down of the *Guts*: But, as there is no Convenience for the making of them in Hoſpitals, ſo Accidents muſt be quickly provided for, that come oftentimes all of a ſudden; ſuch as the Deſcent of the *Inteſtine* into the *Scrotum*; for the Pains are then extreamly violent, and ſo grievous that they reſemble thoſe of the *Paſſio Iliaca*.

Wherefore on ſuch an Occaſion I apply a Cataplaſm of *Ox-Dung*; or elſe when I may have it ſo, I uſe it fryed in Oil of *Hempſeed*, or in that of *Violets*. This Remedy eaſes the Pain, by diſpelling the Wind, and ſo gives liberty to reſtore the *Gut* into its Place, provided the *Inteſtine* is without excrementitious Matter in it. *Aſtringents* of the firſt Rank may alſo be uſed, as common *Bole*, &c. mixed with the Glair or White of an Egg or Vinegar. Some uſe *Emollients*; but this Operation is too ſlow in a Caſe requiring ſuch haſte.

I have often found much Advantage from a *Fomentation* made up of *Pomgranate Flowers*, *Nut-Galls*, *Cypreſs Nuts*, *Pomgranate-Rind*, *Allom*, *Camomil* and *Melilot Flowers*, with *common Salt*, all bruiſed and beaten, and boiled in *Fog-water*, or in rough harſh *Wine*; I uſe it very warm altogether, without ſtraining the

the Liquor. With this Remedy I have reſtored Patients who ſeemed to be upon the very brink of Death. Moreover, the *Emplaſtrum pro Hernia* ought to be applied upon the Dilatation of the *Peritonæum*; but without a *Truſs* the beſt of all Remedies will do no great Feats.

CHAP. V.

Of Wounds.

I Have ſufficiently explained my *Method* as to what concerns *Wounds*, in the Account of Cures contained in my Second Part. My Deſign is here (for Reaſons mentioned at the beginning of this Part) to entertain my Reader with a general and comprehenſive *Idea* of my *Way* of Practice, that may quadrate to all the different Sorts of Wounds that occur.

Perhaps this *Method* may ſeem to ſwerve a little from that of the *Ancients*, or may not agree ſo much with that in uſe amongſt the moſt part of the *Moderns*, as ſome could deſire. But I would entreat thoſe who ſhall read this *Treatiſe*, not to condemn it before they have thoroughly examined the Truth of the Matters of Fact, and the Reaſonableneſs of the *Rules* therein laid down; for our uſual Raſhneſs in judging of what we don't altogether underſtand, is often the Cauſe of our *Error*. However, I am in good hopes, that e'er it be long this

this Way will be acknowledged to be the Product of *Experience*; and its *Evidence* to be an infallible Mark of its *Truth*.

Beſides, I dare confidently affirm, that this *Method*, howſoever new it may appear to many, ought not to be numbered among thoſe things that are more *curious* than *profitable*. *Reaſon* ſpeaks for it; putting it beyond all doubt: and about Three thouſand wounded Perſons happily cured by it may warrant any one in the Uſe of it. In the firſt and ſecond Part of this Work, I explain at length the *Reaſons* that juſtify my Practice, and ſupport them with ſeveral *Authorities* both of the Ancients and Moderns.

If I condemn *Tents* as Inſtruments unprofitable and deſtructive, 'twas *Experience* that convinced me of their Miſchief; and, I hope, henceforward very many Surgeons will range themſelves on my Side.

If I recommend, in a ſpecial manner, a *gentle* and *ſpeedy Way* of Dreſſing, I muſt herein be juſtified by all Men of ſound Underſtanding. And indeed I don't queſtion, but every reaſonable Perſon, after he has been rightly informed, will ſufficiently approve what I have advanced in this Matter.

To conclude, in aſſerting that the *Air* is *hurtful* to Wounds, I have ſaid nothing but what *Hippocrates*, *Galen*, and many others were ſufficiently convinced of. 'Tis known to all, that the *cold piercing Air* is very pernici-

ous

ous to our *Nature*. On this I have enlarged a little, in the ſeventh Chapter of the firſt Part, according to that little Meaſure of *Underſtanding* wherewith I am endowed.

I ſuppreſs *frequent Dreſſing*, that *Nature* may be allowed time to act, and to reſtore the wounded Parts to their firſt Condition; which ſhe can't do when ſhe is ſo often interrupted in her Work.

I have ever obſerved this as a general *Rule*, to dilate by *Inciſion Gun-ſhot* Wounds at the firſt Dreſſing; as alſo all other *penetrating* Wounds, and ſuch as have a *narrow Orifice*. This is the true Way to keep off, and to avoid the moſt part of Accidents that happen in Practice; and to prevent being reproached, when any troubleſome Symptom falls out, I ſometimes uſe *Dilaters* in the firſt Dreſſing, to hinder the Union of the new Inciſions, to keep their Brims aſunder, and to leave an open Paſſage for Matter, or any thing elſe to come away, when *Nature* ſhall be diſpoſed to expel them; otherwiſe I uſe them not, leſt I ſhould hinder the cloſing up of the Wound.

When the *Bleeding* is obſtinate, I uſe calcined *Vitriol*, *Aſtringent Powders*, *Powder* of dried *Vine*, *Styptick-waters*, &c. 'Tis only in deſperate Caſes that I have recourſe to *Roman Vitriol*, *Aqua fortis*, and the *actual Cautery*.

I have ever, in the firſt Dreſſings, found much Advantage from *Defenſatives*, which I applied above, and ſometimes below the *Wound*,

to

to allay the *Heat* of the *Blood*, to moderate its *Activity*, and reſiſt *Fluxions*; obſerving always to make them ſomewhat *Emplaſtick*.

I make the Diverſions without loſs of time, with intent to correct the univerſal Fulneſs, facilitate Circulation, and leſſen the abundance of Blood that might fall in upon the Parts affected; and one or two Bleedings at firſt are of more uſe than four after the Accidents or diſorderly Symptoms appear.

I am always careful to empty the lower Belly by *Clyſters*, having found that the *retaining* of the *Excrements* is always a mighty hindrance to the *good Diſpoſition* of the Body.

When the *Bleeding* is great, I don't take off the firſt *Dreſſings* till the ſecond or third Day after they are applied, that the wounded Veſſels may have time to unite; and provided the *Seaſon*, and the *Pain*, or other *Accidents* don't hinder, I every Day take off the Rollers during that time; and leaving only that which ſupports and keeps on the *Aſtringents*, I make *Embrocations* when needful, and renew the *Defenſatives*. By this means I often avoid the *Suffocation* that may happen, if the *Aſtringent* and *Emplaſtick* Medicines are too long kept on the Parts, which by ſtopping up the *Pores* of the Skin, and retaining the *Vapours* that ought perpetually to paſs thro' them, are the Occaſion of many very grievous Accidents that happen to *Wounds*. Too great a Quantity of Bands and Compreſſes has often the ſame Effect.

I uſe

I uſe only *Pledgits* after the firſt, and ſometimes after the ſecond Dreſſing; and continue the *Embrocations* till the *Contuſion* is diſſolved, which may be in five or ſix Days more or leſs, according to the Bigneſs and Condition of it, or to the Nature of the *affected Part.*

When a *Phlegmon* or an *Eryſipelas*, &c. happens to a *Wound*, I avoid the Uſe of *unctuous Things*, which are hurtful here; employing only ſuch Cataplaſms as are proper for eaſing Pain, and ſometimes alſo diſſolving Medicines, which together with *Diverſions*, and a proper *Courſe* of *Diet*, reſiſt and overcome theſe Accidents.

I find it very profitable, when I dreſs the *Wound*, to cover it with a *Linen Cloth* wet with warm *Wine* or *Brandy*, immediately after I have taken off the Dreſſings. This defends, ſtrengthens, quickens and unites the *Spirits*, and hinders the Particles of the *Air*, and the *Effluvia* therein, to ſtick to the *Wounds*, or paſs to their Bottom.

After the firſt Dreſſing is over, I never ſearch the *Wound* either with my *Finger* or *Probe*, unleſs there is an abſolute Neceſſity for it. I alſo diſallow the uſe of *dry Tents*, ſo commonly employed for drying up the Matter from the very Bottom of *Wounds*; and generally every thing that may *irritate* or occaſion *Pain*, or may oppoſe the Deſign of *Nature*, which is the healing up of the *Wound.*

I don't,

I don't, as ſome do, take up a deal of time in ſtriving exactly to empty the *Wound* of all the *Matter* that is in it; but as quickly as can be, I apply the *Dreſſings*, to hinder, as hath been ſaid, the Action of the acid Parts of the *Air*, and the *Diſſipation* of the *Spirits*, that the Strength of the afflicted Parts may be preſerved as much as poſſible; which is very requiſite, in order to enable them to bear up againſt the many Evils wherewith they are aſſaulted on all Hands.

When I ſay in the fifth Chapter of the firſt Part, that the *Matter* ought not to be retained in *Wounds*; and that *Nature* would not be at ſuch Pains to drive it out, if ſhe could have any Advantage by its ſtay; this is to be underſtood of ſuch Matter as is kept in by means of *Tents*, which becomes hot, and ferments, and by its abode acquires an evil Quality, and might be ſucked up by the Veins; for that which is laudable is hurtful only by Accident, being of its own Nature balſamick, becauſe it is ever mixed with good ſtore of the *natural Balſam*, or *nutritious Juice*, which without Intermiſſion flows into the wounded Parts. What I ſay is confirmed by that which is done in ſome Places in *Holland*, where of the *laudable Matter* that runs from *Wounds*, they make a *Balſam* that is of great Uſe in their Cure.

It is not at all improbable that the *Sound Matter* that comes from *Wounds* may promote their *Cure*, when by the *Hand* and *Diligence*

ligence of a skilful *Artiſt* it is purified and ſeparated from its excrementitious Parts; for what remains is only the *Balſam* of the *Blood*. This will be more eaſily conceived by thoſe that conſider, that there are ſome learned and ingenious *Italians*, who cure the *Bloody-Flux* with a *Salt* drawn from the Excrements of the Patient; and alſo ſuch as have a *Dropſy*, with the *Salt* of the Waters that are drawn from their Belly. *Etmullerus* alſo very much commends the *Excrement* of the *Ears* for curing *Wounds*.

All theſe things contain leſs balſamick Juice than the *Matter* that runs from *Wounds*, when it is not altered by the Heat of an eſſential or ſymptomatick *Fever*, when it has not remained long in the *Wound*, as being detained there by *Tents*, &c. or in fine, when it is not depraved by the uſe of *putrifying Medicines*, or others of a like Sort, that deſtroy its natural Temperament.

M. *Verduc*, *Tome* 1. *Page* 440 ſpeaks very patly to this purpoſe, when he ſays, that *Matter* is the *Chylous Part* of the *Blood*: Wherefore it is againſt all manner of Reaſon, that ſome Moderns require that the *Wound* be accurately wiped dry, ſeeing thereby it is deprived of that which only can effect the Cure.

When I know, or am in doubt, that there is ſome *extraneous Body* in a *Wound*, which *Nature* would exclude by the *Orifice*, or that any *Splinter* is ſeparated from a Bone, without having

ving to do with *Tents*, I ſufficiently dilate the *Wound* with *prepared Sponge*, or the *Pith* of *Elder*, or *Gentian Root* fitted for that purpoſe, that a free Paſſage may be given to any thing that muſt come away. This Way is underſtood by every Surgeon, and there is no Difficulty therein, provided one be careful to uſe it *ſeaſonably*.

I can't reſtrain my ſelf from highly blaming thoſe who very patiently marſhal up in order a great Number of *Doſſils* or *Dilaters*, of which they make three or four *Lays* for *Wounds* that are any thing large, obſerving a certain Symmetry and Proportion, which expoſes to the View of Aſſiſtants a Method no leſs pernicious than contrary to *common Senſe* and *Reaſon*. As for the *Decency* and *Seemlineſs* which adorn and ſet off that Way, it will be no leſs conſpicuous in making large Pledgits of long and pretty fine Lint, that may at once reach over all the Extent of the *Wound*.

I my ſelf have experienced what a fond Opinion is commonly entertained of that *cruel Method*; for the greateſt Part of wounded Perſons believe themſelves *neglected*, if an *Hour* is not ſpent in *ſearching* their *Wounds*, and as much in *applying* the Dreſſings; but *Charity* obliges us to *free* them from their *Error*.

When a *Wound* is deep with much loſs of *Subſtance*, I fill it only with *Pledgits* of fine Lint; leſt leaving an empty Space, it ſhould be filled up with *Air*: I apply them very ſlightly

ſlightly covered, or moiſtned with ſome Medicine agreeable to the Nature and Quality of the *Wound*. Theſe are not ſo hard as *Doſſils*, and conſequently occaſion leſs Pain, and don't ſo much oppoſe the cloſing up of the *Wound*, being not ſo compact as to hinder the breeding of Fleſh; neither are they ſo apt as *Tents* to be loſt in the *Wound*, or fixed in ſome Corner of its Cavity.

I am no leſs careful to ſuppreſs *Injections* as well as *Tents*, having obſerved their Effects to be no leſs pernicious; for they *liquify* and *diſſolve* the *Blood*, *enlarge* the *Wound*, cauſe *Pain*, and make *proud Fleſh* to grow.

I diſallow the Uſe of *Aromatick Wines* in Dreſſing, as alſo of Fomentations, which are frequently uſed by ſome, and contribute very much to the protracting of the Cure.

'Tis very ſure that theſe Parts drink up the *Moiſture* which ſoftens, relaxates, and puffs up the *Skin*, and paſſing through it, fills them like Sponges; the *Natural Heat* of the afflicted Parts is thereby ſuffocated and extinguiſhed, no perfect *Concoction* can be performed, but all is turned to *Matter* and *Corruption*. And if this *Method* is long continued, as it too often falls out, the *Ligaments* are relaxed, and the Patient is in danger of being lame for all the reſt of his Life.

This Way of Practice is in a particular manner pernicious in *Hoſpitals* of the *Army*, where that which is neceſſary to give Remedies to

all the required Qualities is not always to be had. For inſtance, how can they be kept warm, without a ſufficient Number of Cloaths to preſerve the Patient from the Cold? Hence it is, that in a moment after Application all the Dreſſing becomes cold and frozen, which occaſions *Oedema's* very hard to be cured, and oftentimes Symptoms that are yet more troubleſome.

A right Courſe of *Diet* is ſo neceſſary in the curing of Wounds, that without it an infinite Number of *Accidents* cannot be prevented: But it is neceſſary to have reſpect to the *Age* and *Conſtitution* of the Patient, to his *Habit* of *Body*, to the *Seaſon* of the *Year*, and the *Nature* of the *Wound*.

'Tis to be obſerved, that a very ſtrict Diet is a mighty hindrance to the Cure of Wounds in Soldiers, who ordinarily feel more of the Inconveniences of a too ſcanty, than thoſe of a too plentiful Table. Wherefore, I don't altogether deprive them of the uſe of ſubſtantial ſolid Food, unleſs when Neceſſity requires otherwiſe, for this keeps up their *Strength*. For Broths, tho' good, are not ſo nouriſhing in *Hoſpitals*, as to be ſufficient of themſelves for Food; and at the ſame time this is no prejudice to the neceſſary *Diverſions*. *Wine* alſo a little allayed ought not to be kept from them, unleſs in ſome very important Caſes: It reſiſts the ill Quality and Malignity of the *Air*, which is always impure in *Hoſpitals*; and, in a word,

word, *Wine* is their *Cordial* and *Counterpoiſon*.

It is likewiſe very neceſſary, eſpecially in *Hoſpitals* of the *Army*, to have *regard* to the *Situation* of the *wounded Part*, which ought to be ſuch, as to give *Liberty* to the *Circulation* of the *Blood*, a *Deſcent* to the *Matter*, and *Eaſe* to the Patient; I have known the neglect of this Point occaſion very troubleſome Symptoms.

If a *Surgeon* is not ſo charitable as to give Inſtructions to thoſe that attend the wounded, how to make their Beds ſuitable to the Quality and Nature of their Wounds, the miſerable Patients are ever in Pain by the inconvenient Poſition; which is enough of it ſelf to deprive them of the Reſt that is ſo neceſſary for them, and to render their Sufferings numerous, and our Cares to no purpoſe.

The *Head* ought to be placed indifferent high, and laid upon ſomething that's ſoft, without Feathers, if it may be had, with a *Deſcent* to promote the Diſcharge of the Matter. When the *Neck* is wounded, it muſt be in a manner ſlightly ſupported by the Pillow, or by Linen folded into ſeveral Doubles; we muſt fill up the empty Space between the Head and Shoulders.

Wounds of the *Breaſt* require an eaſy and unſtrained Poſture, rather high than low. But in this we muſt have moſt regard to the Convenience of the wounded Perſon.

Thoſe of the *lower Belly* and *Loins* demand almoſt the ſame Situation: To thoſe of the

Bladder and *Genital Parts*, and undiſturbed *Repoſe*, a convenient Bandage, which is a *Suſpenſory*, and a Poſition ſomewhat raiſed, are very needful.

Every Body knows that the *Arm*, when wounded, muſt be ſupported by a *Sling* that paſſes over the Neck; and that in Wounds and Fractures of the *Shoulder-Bone*, a Pillow is neceſſary to keep it almoſt as high as the Breaſt, in which Poſture it is moſt at eaſe: In Wounds or Fractures of the *Wriſt*, *Metacarpus* and *Fingers*, we muſt keep the Hand extended with a Piece of Board.

Wounds of the *Thighs* require that the Member be placed ſtreight, neither too high nor too low. Thoſe of the *Legs* and *Feet* do neceſſarily demand that the Part be ſomething high, that ſo the coarſer Blood may freely circulate; for otherwiſe, the Blood by its Weight might be ſtopt in the Veins, and corrupted there; and thus the Circulation being ſuppreſſed, many grievous *Accidents* would enſue. This hanging, or low Poſition of the Legs, not being minded by many Surgeons, tends exceedingly to render Wounds of theſe and the Feet very hard to be cured, and makes them degenerate into *Ulcers*.

It is alſo very neceſſary to ſtretch out the Legs, and keep them ſtreight during the Cure; otherwiſe it will be difficult to reſtore them to their natural Figure, after it is over; eſpecially if it has been of ſome Continuance; as,

ſuppoſing the Leg had been kept bent, when under Cure of a *complicated* or *ſimple* Fracture. This is what I have often obſerved, and to which young Surgeons would do well to take heed. Fractures of the *Tibia* and *Fibula*, and ſimple Wounds in the Legs, if any thing conſiderable ſtand in need of a *Sole* to ſuſtain the Foot, as well as thoſe of the *Tarſus*, *Metatarſus*, and *Toes*.

Too ſtreight Bandage, eſpecially in *Gun-ſhot Wounds*, occaſions troubleſome Accidents; it hinders the Circulation, and frequently cauſes Mortifications: Wherefore I uſe only ſuch as may keep on the Dreſſings, eſpecially the firſt Day. Many have been brought wounded to this *Hoſpital*, with the Parts half gangrened, by too tight tying; for in *Gun-ſhot Wounds* the wounded Members ſwell always, ſome more, ſome leſs, whereby the Bandage, though but moderately ſtreight, becomes intolerable before the next Dreſſing. Reſt alſo is of no leſs Conſequence to the Patient. Now where all theſe things meet together, and are rightly ordered, they are commonly of very great Advantage to the Wounded.

I uſe *Purgatives* with great Caution, and that only after the time of the moſt *dangerous Symptoms* is over, beginning always with the ſlighteſt that only looſen, ſuch as *Caſſia* and *Manna*, &c. During this Interval, *Clyſters* together with the Uſe of *Prunes*, give no ſmall Relief: *Oats* and *cleanſed Barley* being eaſily digeſted,

digeſted, qualify the *preternatural Heat* of the *Blood*, and keep open the Belly.

As for the *topical Remedies*, which I commonly employ in Dreſſing of Wounds, they have nothing ſingular in them that is not pretty well known to the moſt Part of Surgeons.

I avoid as much as poſſible the Uſe of *putrifying* Medicines, and of *powerful Suppuratives*, becauſe they deſtroy the Temperament of the Parts, diſunite the Particles of the *Blood*, and corrupt and deprave the *nutritious Juice*, which ought carefully to be preſerved in a good Condition. 'Tis this which moved the Ancients ſo often to recommend to us, to maintain the wounded Parts in their *natural Temper*.

Hippocrates affirms, that all *contuſed Wounds* ought to be brought to *Suppuration*, in order to a ſpeedy Cure, whereby he ſeems to patronize and allow the Uſe of *putrifying Medicines*, which commonly are employed to bring a Wound to Suppuration. But methinks this ought not to take Place in the Hoſpitals of the Army, where the *Air* is ordinarily infected by the Breath and abode of the Sick; and which are almoſt ever encompaſſed with the *Graves* of the Dead, whoſe Number is but too great.

'Tis very certain, that this Nearneſs of the *Place* of *Burying*, eſpecially in hot Seaſons, imparts to the *Air*, by the Steams that riſe from thence, a Complication of Corruption and ill Qualities, that occaſion *Rottenneſs* in Wounds, *Alteration* and great *Suppuration*, and

often cauſes great *Mortality* in the Hoſpitals, and Places adjacent. Now according to this Maxim of that Author, *Gun-ſhot Wounds* muſt be dreſſed with theſe ſame Medicines, as being of the Number of contuſed ones.

I don't abſolutely deny, but there may be ſome Occaſions wherein ſuch may be uſed: However, I may be allowed to ſay, with all the Reſpect I owe to ſo celebrated an Author, that in *Hoſpitals* we ought to ſhun as much as poſſible *putrifying* and *ſuppurative* Remedies, and others of the *like* Nature, even where the Eſchar may require a conſiderable time before its falling: For by the ſeaſonable ordering of *Diverſions*, and the Courſe of *Diet*, all thoſe Accidents are often prevented, which the Delay of the Suppuration might cauſe; and one may without Scruple uſe, as I have done, ſuch Remedies as have a Vertue to reſiſt Corruption; as the Spirit of Wine, which *Etmullerus* preſcribes even in *Gun-ſhot Wounds*, and which I uſed at the firſt Dreſſing, on the Day of the Battle of *Marſeilles*, without having obſerved any evil Conſequence of my ſo doing: For beſides, a *good Method*, which may be called the Strength and chief Inſtrument of a Workman, it is of high Concern to underſtand, and to know how to chooſe Remedies that agree with the Temper of the Parts to which they are applied, and to maintain them: But it proves often a very difficult Task to ſatisfy *this Intention.*

As

As there is an admirable variety of *Conſtitutions*, ſo it would ſeem, that it were neceſſary to uſe different Remedies to Wounds of the ſame Nature, and of the ſame Parts, in different Subjects: The *Sex*, *Age*, and *Seaſon* muſt alſo be conſidered. I have likewiſe obſerved in my Travels, by People of different Nations that have been under my Hands, that divers *Climates* require *particular Applications*, in certain Circumſtances, neceſſary to the Cure of Wounds: For the Conſtitutions of Men depend chiefly on the Countries they inhabit; on their *Situation*, high or low, dry or moiſt, the *Winds* that rule, the *Food* and *Water* that they take: So that they differ among themſelves according as the *Heavens* look upon them with different *Aſpects*.

But not to ſearch any further into theſe things, which can't be contained within the Limits preſcribed to this little Work, and don't properly belong to my *Subject*; I will only ſay, that it is eaſy enough to diſtinguiſh a proper Remedy from one that is not ſo: That which corrupts and depraves the *natural Balſam*, is known by looking into the Wound; from which, if there proceeds a ſtrong and *ſtinking Vapour*, 'tis a Sign that the Matter is not concocted, for that it is thin, blackiſh, too plentiful, watery, and of an offenſive Smell.

The *Fleſh* likewiſe has its peculiar Signs; it is dull of feeling, and ſometimes is covered

with another proud Fleſh: Oftentimes there is to be ſeen over all the Wound, a certain black or white *Filth*, which ſome, as I have often known, ſcrape or cut off at every Dreſſing, whereby the Wound is enlarged, and the Cure delayed: Others imputing it to the vicious Temperament and ill Diſpoſition of the Patient's Body, have Recourſe to Purgatives, which occaſion ſtill more new Accidents, ſuch as *Fevers*, &c.

But be this as it will, 'tis certain that we ought not always to delay till the laſt, before we change the Remedy; our Smell and our Sight alone are ſufficient to direct us on this Occaſion: *Hippocrates* orders a Medicine to be changed, when it does not what it ought, or was deſigned for.

But we muſt not, on the other hand, fall into the contrary Extremity of changing the *Ointments*, ſometimes once, and often twice every Day; not giving time to a Remedy to act, and exert its Vertue on the Part to which it is applied: 'Tis neceſſary that the wounded Part draw as it were Nouriſhment from the Medicine, and therefore it muſt have a requiſite time allowed it for that Purpoſe: It muſt, if I may be allowed ſo to ſpeak, amalgamate with the *nutritious Juice* of the Part; or at leaſt, if it don't encreaſe its Quantity, it ought to preſerve it in the natural State, and when fallen therefrom, reſtore it again. To be capable of theſe Effects, it muſt be endowed with

with a volatile and oily Spirit, viſcous and temperate, as *Balſams* and *Vulneraries* are, which I have uſed with very good Succeſs.

I have often experienced on many Occaſions, in ſeveral Hoſpitals, and chiefly in this, and that in very conſiderable Caſes, that after I had in vain uſed many Remedies authoriſed by *Cuſtom*, the *Balſam* deſcribed in the *ſacred Writings*, has had ſurpriſing Effects; and that Members at the Point of being cut off, have been thereby cured with much Eaſe. This Hoſpital of *Briançon* might afford many Inſtances of the Truth hereof, but I ſhall content myſelf with the two following

CHAP. VI.

An Obſervation *of a very conſiderable Caſe.*

A Surgeon of this Hoſpital, being one of thoſe who was moſt employed in dreſſing the Wounded, by Accident had a *Thorn* run into the middle Finger of his right Hand, which pierced the Tendon of the Muſcle that bends it: His whole Hand and Arm were attacked with very troubleſome Symptoms, accompanied with a continual Fever, extremely violent, and an unſufferable Pain.

Five or ſix Days paſt before I had Notice of this Accident; and all the Symptoms were at the very worſt: I found all things in a de-

plorable Condition, the Arm ſwelled as big as ones Leg, the Hand of a monſtrous Size, and the Finger as great as ones Arm; many Cavities were in the inward Part thereof, and ſome in the outward, from which iſſued a ſerous Matter; there was another large *Sinus* under the *Muſculus palmaris*, with an Orifice near the Roots of the Fingers.

I immediately laid open the Finger on the inwards Part, from one End to the other, and found the *Tendon* ſwelled and corrupted: I did not enlarge the Orifices on the outward Part, nor that of the Palm, hoping that all theſe would be well, if I could but overcome the Accidents.

He was let Blood, and had a *Clyſter* given him, tho' ſomewhat too late; he obſerved an exact Courſe of *Diet*, and was dreſſed with the Balſam of *Arcæus:* Next Morning when I took off the Dreſſings, I was ſurpriſed, as I had been the Day preceding, with a Vapour of an intolerable Smell; the Lips of the Wound were turned outward, which made me deſpair of a Cure, and judge it would be neceſſary to cut off the Hand: The *Matter* remained undigeſted, the *Fever*, the *Pain*, and the *Swelling* continued as before; ſo I dreſt him in the ſame manner as the Day before, with addition only of a little Spirit of Wine. The *Bleeding* was repeated, and alſo the *Clyſter*.

The Day following the Wound was in the ſame Condition, only the Corruption appeared

to

to encreaſe: And we were of Opinion, that nothing but *Amputation* could ſave his Life. But for as much as Art and Reaſon dictates, that the Preſervation of the Members ought to be endeavoured as much as poſſible; and as we are obliged in Conſcience to try all Remedies before we come to that Extremity, I reſolved forthwith to change the Medicines, judging rightly, that what had been uſed might have occaſioned this Depravation of the *Salts*; whence it was to be feared a total Corruption of the *nutritious Juice* might follow.

With this View I uſed the *Balſam* of the *Scriptures*, mixed with a third Part of that of *Arcæus*; in this I wetted the Pledgits, which I applied very warm over all the Wound, and upon the *Sinus's*. I poured ſome of it alſo into the *Sinus* of the *Muſculus Palmaris*, and upon it I put a Plaiſter of *Diapalma* diſſolved in *Oil of Roſes* and good *Vinegar*.

On the next Day after this we found all things much changed to the better: The *Fever* and *Pain* were leſſened, and there was nothing of ſo ill a Smell as before.

I queſtion not but the *Fever* is a Symptom troubleſome enough, and able to cauſe all theſe Effects; and that by the Motion it excites in the Blood, it ſeparates ſaline and ſulphureous Juices, that by irritating the Fibres may occaſion that turning out of the Lips of the Wound, their Swelling, and that inſupportable Smell. But it can't on the other Side be denied, that

outward Remedies contribute much to procure that Fermentation and Corruption in the wounded Part, when they are ſuch as Putrify, becauſe they diſſolve the Blood and other Liquors, cauſing *Irritations*, *Corruptions*, and great *Suppurations*, and deſtroy the Temperaments of the Parts to which they are applied. Whereas when balſamick and ſpirituous Medicines are uſed, they produce quite contrary Effects: For by allaying the Sharpneſs of the Humours, and making the Blood fluid, they reſiſt Corruption, and dry up the Moiſture, in the place where they are applied, caus'd by the *Fever*.

In fine, whether it was by this, or any other Way, 'tis certain that the *Change* of the Medicine here produced a notable Alteration on our Patient; for tho' the Fever appeared but very little abated by all that I had formerly done; the very next Day after this, the Lips begun to come nearer together, the Pain and Defluxion ceaſed, and which is moſt of all, the ill Smell was quite vaniſhed; ſo that in five or ſix Days he was paſt all Danger, and the Cure was compleated in a little time after.

M. *le Clerc*, Phyſician to the King, in his *Compleat Surgery*, commends much the *Samaritan Balſam*, to which we have given the Title of, *The Balſam of the Holy Scriptures*; and the Approbation of ſuch a Man is ſufficient to juſtify its uſe. So I reckon 'twill not be improper to ſubjoin here the Deſcription of another compound *Samaritan Balſam* of an admirable

mirable Vertue. It is made up of equal Parts of *Spaniſh* Wine and Oil of Roſes to each Pound, of which mixture two Ounces of Sugar-candy, and as much Honey of Violets muſt be added, and all boiled on a gentle Fire, and skimmed till the Wine is conſumed. This may be called the *Balſam* of *Balſams*, or the *Compound Samaritan Balſam.*

CHAP. VII.

An Obſervation of another Caſe.

MR. *Vert*, the Younger, an Enſign of the Company of M. *de Beauvet*, Lieutenant of the King at *Briançon*, and Commander of the Second Battalion of *Saulx*, had no leſs Reaſon to applaud my *Method*, and the good Effects of my *Remedy*, than the Perſon we diſcourſed of in the preceding Chapter.

He was wounded with a Sword at *Pragelas*, in the outward Part of the left *Arm*, near the bending of the *Elbow*. The Wound was at firſt neglected, being not well dreſſed; for without dilating it in any manner, a *Tent* was thruſt into it as long as it could poſſibly receive; which occaſioned ſuch diſmal Accidents, that the Patient thought of nothing but loſing both his Arm and his Life. In the inward Part of the Arm, oppoſite to the Wound, Matter was collected, and *Abſceſſes* formed,

which obliged him to conſult the principal Surgeons of the Regiments, who thought it convenient to make an *Opening* in that Part; which accordingly was done. By the large and deep *Inciſions* that were made, the *Artery* was opened; ſo that they were obliged to uſe the *actual Cautery* to ſtop the Bleeding. By this means the Wound was enlarged, and the Pain and the Accidents encreaſed.

The firſt Wound was ſtill dreſſed as before, with *Tents*; but the wounded Perſon having kept his Bed for fifty Days, and his Wounds being ſtill in a very wretched Condition, he was adviſed by the abovementioned Gentleman M. *de Beauvet*, to cauſe himſelf to be tranſported to *Briançon*, to try if there he might find any help. Accordingly, he was committed to my Care, and I found the inward or lower Wound the length of a large Span, and four or five Fingers breadth wide: The *Artery* and *Tendons* were uncovered: The ancient or outward Wound, whoſe Orifice was very ſtreight, had in it a pretty long *Tent*, which ſhut up the Paſſage of three or four *Sinus's* that took up all the Joynt.

The Arm and Hand were œdematous, being much ſwelled and painful. I began by making an Inciſion in the Wound on the outward Part, whereby I diſcovered the Orifices of the *Sinus's*, into which I dropt a little of our *Balſam*, mixt as I formerly ſaid, with ſome of that of *Arcæus*.

The

The large and lower Wound was dreſt with the ſame Remedy. We uſed expulſive Compreſſes, to preſs together the Sides of the Cavities, which we keep on with a proper Bandage: And withal we laid aſide the *aromatick Wines* that had been uſed before upon all the Part, to his great Detriment.

Three Days after it had been dreſt in this faſhion, the moſt part of the Accidents diſappeared. He begun to riſe up from his Bed, to eat his Victuals, and to gather Strength; all the deep *Cavities* were filled up; the *Artery*, the *Nerve*, and the *Tendons* were covered over; the *Pain*, the *Fluxion* and the *œdematous Swelling* were quite gone; and by this powerful Incarnative the Cure was compleated in a Fortnight, with the aſſiſtance of a little *Unguentum Apoſtolorum*, wherewith we ſometimes uſe to conſume the Fleſh: After this he mounted his Horſe, and went for the *Air* into his own Country.

This I may confidently affirm, as a certain Truth, that when the Balſam we ſpeak of is genuine and unſophiſticated, it may ſerve at the ſame time both for *Food* and *Medicine*, being made up only of *ſweet Oyl* and *Wine*: And that it may be uſed not only for curing Wounds of the *Mouth*, of the *Tongue*, of the *Gullet* and *Wind-pipe*, and generally of all the *Breaſt*, but likewiſe in obſtinate *Dyſenteries*, and *Relaxations* of the *Fibres* of the *Ventricle*, in *Ulcers* thereof, and in thoſe of the *Guts*, and

and of all the *lower Belly*. For if we conſider its Nature, we ſhall find it of a friendly Quality, and extremely agreeable to our Conſtitution, as being compounded of ſuch things as ſerve us daily for Food. *Sweet Oyl* ſoftens, looſens, ſweetens and penetrates; and when it is boiled with *Wine*, which it devours as it were and conſumes, retaining with its ſelf all the Vertue thereof, it is enabled to perform all thoſe Operations with much more Eaſe: It cuts, diſſolves, ſtrengthens, reſtores the Spirits, breeds Fleſh, and is aſtringent; all which our *Balſam* performs, being endowed with the moſt uſeful Vertues of theſe Remedies, and containing a *Volatile*, *Oily* and *Temperate Salt*, that is aſtringent and ſarcotick: And if a little *Sugar* is boiled with it, it becomes yet more excellent, is more vulnerary and balſamick, has no Acrimony, and is without either Smell or Taſte.

Had this *Remedy*, how ſimple ſoever it may appear, *produced ſuch Effects* in the hands of any other but my ſelf, they would without queſtion have made a great Secret of its Compoſition; and tho' this had been known to many, yet they would never have publiſhed its Vertues.

It were mightily to be wiſhed, that there were only *one Remedy*, which might be able to anſwer all Intentions, that we ſhould not be always obliged to have in the Patient's Chamber a whole *Apothecary*'s Shop; which is often no leſs prejudicial to the *Purſe*, than offenſive to the *Smell*. Be-

Being about ſix Years ago at *Turin*, I cured a Gentleman of an inveterate Ulcer, that encompaſſed all the Bottom of the *Uvula*. Many Surgeons had to no purpoſe uſed a great many Remedies: And I, in like manner, after the uſe of ſome more with no better Succeſs, bethought my ſelf at length of my *Anodyne Balſam:* In this I dipt a Linen Rag tied to the end of a Probe, and therewith touched the Ulcer twice a Day: By this means, as I ſolemnly proteſt, in twelve or fifteen Days the Ulcer was cured.

This Remedy, how ancient ſoever it is, will appear new to many. However, 'tis certain, that *Hippocrates*, in complicated Fractures, uſed little Linen Rags dipt in *Oyl* and *Wine* mixt together, to allay the Pain, and prevent Convulſions, which is a *Precedent* ſufficient to invite our Imitation.

It hath been the Policy of almoſt all who ever wrote of Medicines, ſtill to reſerve ſomething undiſcovered to themſelves. I could name a great Number of Authors, who have publiſhed the Vertues of certain *Remedies*, whereof they have never given the *Compoſition*; or if they have, it has been in ſuch *ambiguous* and *enigmatical Terms*, that it is hard to underſtand any thing of it. And indeed I muſt acknowledge, that a Remedy, when it becomes common, how good ſoever it may be, loſes much of its Eſteem.

I have formerly ſaid, that the Variety of *Conſtitutions*, and Diverſity of wounded *Parts*, re-

require ſometimes a Difference of *Remedies*; to this we muſt have all due Regard. For it often falls out, that even the moſt excellent Medicines are not capable to anſwer all our Expectations; eſpecially when the Patient is of an ill Conſtitution, and the Diſtemper obſtinate and troubleſome.

However, it is not good to put too much Confidence in this *ſingle Compoſition*, as if it were an univerſal Remedy, if at any time the Succeſs prove not anſwerable to our Deſires. I own, that I have been obliged my ſelf in ſuch Caſes, to boil in our *Balſam*, the *greater Compound*, *Bugle*, *Sanicle*, ſome *Lavender*, *Clary*, St. *John*'s-*wort*, and the *leſſer Moon-wort*, which is a powerful Vulnerary, and very common in theſe Parts; and afterwards to give it ſome Conſiſtence, with a third Part of the *Balſam* of *Arcæus*: This *Compoſition* has done ſurprizing things; it hath conſumed and removed *Fungus's* from *Feet* that had been entirely *frozen*, and alſo from *Amputations*, which had withſtood all other Remedies. It procures a good and moderate *Suppuration*, eaſes the Pain of *Wounds* in the *Nerves*, allays and reſolves powerfully, fills up with Fleſh in a ſmall time; and, in fine, an Embrocation therewith cures ſpeedily *Bruiſes* of all Sorts.

Tho' I have a great Eſteem for theſe *Remedies*, and am confirmed in my Opinion of their Excellency by a multitude of *Experiences* that I have had, yet I don't pretend to lay aſide

the *Ointments*, *Cerates*, and Plaiſters of *Pharmacy*; which may be of very great uſe, and are every Day employed with Succeſs, by very skilful Perſons in curing Wounds.

This only I will affirm, by the way; that the moſt Part of Ointments have a ſtrong Smell, that is not only diſagreeable to the Wounded, but is alſo no leſs hurtful to the Wounds than offenſive to the Smell, and tends very much to render them *putrid*, *ſanious* and *virulent*.

There are alſo ſeveral Places, where they very unadviſedly uſe *corroſive Sublimate*, *Arſenic*, and other things of a like Nature in the Cure of Wounds, not foreſeeing their fatal Effects. But in this Point we can't be too cautious: All the Parts of our Body are made up of *Veins*, *Arteries*, *Nerves*, *lymphatick Veſſels* and *Glands*, that are eaſily affected by whatever touches, and by means of the *Circulation*, convey to the *large Veſſels* and the *Origin* of the *Nerves*, the good or ill Qualities that are imparted to them. The *Contagion*, that is communicated to the Sheets of a Bed, wherein one that has the *Pox* or *Itch* has lain for a Night only, will imprint its Characters on a ſound Perſon, that afterwards lyes in them; tho' the impure Matter touch only the *Scarf-skin*, and is to appearance much leſs active than *Arſenic* or *Sublimate*.

The Unfaithfulneſs uſed in making up certain *Compoſitions*, which I have experienced on ſome

ſome Occaſions, hath obliged me to reſolve to make up myſelf ſome that are more ſimple, and much more effectual.

Etmullerus, in his *Medicinal Surgery*, and many others before him, have complained of the prodigious number of Medicines uſed in Practice, and of the many *Plaiſters*, *Ointments*, *Cerates*, and a thouſand other uſeleſs things good for nothing, but to perplex the Minds of young Surgeons. That the great Magazine of *Pharmacy* might be reduced to much narrower Bounds, Experience hath fully convinced me; and there are at this time many Perſons very expert in chirurgical Practice, that are herein of my Opinion, ſome of whom think that one Remedy only may anſwer all; 'twere well if ſuch a Method might be eſtabliſhed, for the good of the Wounded, and the convenience of Surgery.

But I am inclined to think, that no Man has yet gained that Point, which is extreamly hard to be attained, becauſe of the Diverſity of Parts whereof we are compoſed, and the variety of Conſtitutions in different Perſons: 'Tis this Conſideration hinders me from crediting that univerſal Remedy which a certain modern (otherwiſe a very able) Surgeon, at ſome diſtance from theſe Parts, hath endeavoured to eſtabliſh. But if I am not altogether of this laſt Opinion, I am yet much further from that of the Ancients, who have left us ſuch a numerous Liſt of Remedies, as can't be either committed

mitted to the *Memory*, or retained therein. A great deal of Study and diligent Application is neceſſarily required, in order to know their *Vertues* and *Properties*; for, to make the right uſe of a Medicine, we muſt know its *Nature* and Effects, not leaving the Succeſs to Chance and the Fidelity of another, as is often done.

Moreover, 'tis very hard to believe that all theſe mighty Compoſitions are anſwerable in their Effects to the Expectations had of them; the numerous and differing Ingredients do oppoſe, alter, and deſtroy one another. The ſimpleſt Things are moſt agreeable, and ſympathize moſt with our Nature.

I could never yet learn, that *Solomon*, who had an univerſal Knowledge of all things, left behind him for the cure of Wounds, *Compoſitions* ſo perplexing, and ſtuffed with ſuch a number of Ingredients, as thoſe which ſome uſe at this Day: In his time 2 or 3 *Simples* ſufficed to make a Balſam nothing inferior to others now cried up as *infallible Remedies*.

Balſams are recommended in the curing of Wounds by the *Ancients*, and almoſt all the *Moderns*, contrary to the Opinion of ſome that practiſe Surgery, who being Enemies to Antiquity, act (as the *Quacks* do) contrary to all manner of *Reaſon*; but an indiſcreet Paſſion ought never to prevail over that which is juſtified and ſupported by *Experience*.

Tho' I don't approve of Medicines made up of numerous Ingredients, yet I have often

uſed

uſed the *Styptick Plaiſter* of *Crollius*; which, though it may be accounted of this number, ought not at all to be laid aſide: For when it is faithfully made up, it hath *Vertues* too effectual to be neglected, and not ſought after. When I have a Mind to give it a ſofter Conſiſtence, and reduce it to the form of an *Ointment*, that I may make uſe of it in dreſſing of Wounds, I melt it with the *Balſam* which I have deſcribed; and ſometimes with the *Oil* of St. *John's Wort*, prepared with *Gum Elemy*.

It will anſwer all the Expectations that may be had of it, in curing Wounds and Ulcers: It allays Pain, cleanſes, and breeds Fleſh: Thoſe who will give themſelves the trouble to examine its *Compoſition* and *Ingredients*, will agree with me, that 'tis not impoſſible, but it may have all theſe *Vertues*.

I have ſometimes uſed, and alſo in this *Hoſpital*, a *red Balſam* made with an Ounce of *red Saunders*, and *White Wax*; two Ounces of *Venice Turpentine*, *Oil of Roſes* and *Roſe-water*, and a Dram of *Sal-Armoniac*; all mixt together, and haſtily boiled, and kept for uſe: It reſiſts *Putrefaction*, and leſſens *Suppuration*.

The *ſimple Digeſtive* is a Remedy that I commonly uſe to bring away the Eſchar in Gun-ſhot Wounds, mixing always therewith a little of the Yolk of an Egg, and ſome Spirit of *Wine*: I renew it every Day, becauſe it ſoon corrupts, by reaſon of the Yolk of the Egg.

Turpentine is a ſimple Balſam, which is excellent

cellent for the curing of Wounds: The Country People about *Briançon*, who gather a great quantity thereof from the Wood of the *Larch-Tree*, uſe nothing elſe but this *ſingle Remedy*, without any mixture, for the Cure of their Wounds: Certain it is, that they who are accuſtomed to mix with it a great number of *Ingredients*, and *catagmatick Powders*, ſpoil its Vertue, and can expect nothing from it but bad Succeſs.

Arcæus his Balſam uſed in ſo many Places, is not to be deſpiſed when rightly compoſed: But 'tis convenient to remark, that it agrees not to all *Diſtempers*, nor all *Parts* of the *Body*, as was obſerved in the firſt Remark of this third Part: Which I have alſo experienced ſince, on many other Occaſions.

Baſilicon is one of the moſt common Ointments, and moſt uſed: I ſometimes employ it to receive the Powders that I think neceſſary, either to irritate, or procure Suppuration when I judge it convenient: Otherwiſe I don't much deal with it.

It ſometimes falls out, by the uſe of *ſarcotick Balſams*, that the Fleſh grows ſo faſt, as to oblige us to conſume it; and alſo Orifices of the *lymphatick Veſſels* oftentimes raiſe up certain *Protuberances*, that together with the ſuperfluous Fleſh, forms as it were a reſemblance of *Muſhrooms*, which ſome endeavour to remove with *Catharticks*, but to no purpoſe.

I have

I have obſerved, that to touch the *Excreſcence* all over with a Diſſolution of the *Cauſtic Stone*, is much better than any other means that can be uſed for this Intention, provided the Application is renewed ſo oft as is needful. I have in eight or ten Days conſumed *Muſhrooms* as big as my Fiſt, which the ordinary Powders could not have done in two Months. It may be ſeen in ſeveral Places of the ſecond Part of this Book, that I have uſed it with a quick and happy Succeſs, when there was Occaſion to take off the *Calloſity* happening to Wounds, in order to procure a Reunion: And when theſe kind of *Portuberances* have but a dull Senſe, I don't ſcruple to ſprinkle upon them the 'foreſaid *Cauſtic* pulverized, or to apply *Pledgits* dipt in a Diſſolution thereof, 'till I have procured ſuch Smoothneſs as is requiſite in order to a laudable *Cicatrix*, and have reſtored the Feeling of the Part.

When I only intended to bring to an equality the luxuriant Fleſh, and procure a firm and handſom *Scar*, I have uſed with good Succeſs *Unguentum Apoſtolorum*, mixed with a little *Unguentum Ægyptiacum*: This deſtroys *proud Fleſh*, and is an excellent Medicine for *Ulcers*, to be applied before the uſe of *powerful Sarcoticks*; for it quickens the Fleſh, conſumes *ſuperfluous Moiſture*, and reſiſts *Putrefaction*.

I have always mightly approved the uſe of the *Spirit of Wine*, and have often cauſed to dreſs Wounds of the Extremities with this Remedy

Remedy only: 'Tis true, it delays *Suppuration*, and protracts the coming away of the *Slough* in *Gun-ſhot Wounds*; but it powerfully reſiſts *Putrefaction*, corroborates and quickens, hinders *exceſſive Suppuration*, and the *Diſſolution* of the *Nerves*, in which *putrifying Medicines* are very hurtful.

The *Emplaſtrum Tripharmacum Juberti*, made of *Litharge*, *Oil* and *Vinegar*, to which I add a little ſcraped Lint, is admirably good to digeſt a Wound, and bring it to Suppuration, without occaſioning great Putrefaction. It mightily diſſolves *Contuſions*, and its uſe is of great Benefit.

It is certainly very convenient that a Surgeon have ſome *peculiar Remedy*, the Vertues whereof he is well acquainted with, to which he may have recourſe in obſtinate and troubleſome Accidents that ſometimes follow upon Wounds, and will not yield to the *common Remedies*. It is likewiſe oftentimes expedient to change the Medicines, as I have formerly ſaid, and not always to be confined to one thing: For the Fondneſs one may have for a *Balſam* or an *Ointment*, that poſſibly may have done very good Service on many Occaſions, ought not to prevail ſo as to make us employ it at all Times and Places: The *beſt* and moſt *approved Remedies* have not always the ſame Effects, or the ſame Succeſs: For certain it is that not meeting with the ſame *Conſtitution* in all Perſons, 'tis impoſſible they can have the ſame *Operations*. *Reflect.*

Reflect. I have often obſerved, and it daily falls out, that *Quacks*, who have neither *Skill* nor *Experience*, have ſucceeded in the curing ſeveral Diſtempers, after they were given over by *profeſſed Surgeons*, who had beſtowed much time, and uſed many Remedies to no purpoſe: But I don't at all think it ſtrange, for thoſe to leave *Nature* to herſelf on ſuch occaſions; and 'tis ſhe only that works theſe Miracles, that are unjuſtly attributed to them, and give ſuch Repute to their *Remedies*.

Not, but that acting without any Rule, they commit very *groſs Blunders*; being unable with all their *Balſams* to correct, overcome, yea, or foreſee the Accidents that oftentimes follow upon Wounds; for all their Skill extends no further than to the making up of their Remedies; and that which can't be cured by theſe, paſſes with them for incurable. It is not ſo with regular Surgeons; they know the *Cauſes* of *Accidents*, and apply thereto the neceſſary *Remedies*, without abandoning the *wretched Patient* to this ill *Fate*.

It is indeed a notorious Shame, that a wounded Perſon ſhould go from under their Hands, to be cured by a *Quack*, a *Clown*, or a *ſimple Woman*. I have known in ſeveral Places ſuch, who by the Sale of their Remedies have acquired great Reputation; whether by the Confidence that wounded People had of the Vertue of their *Balſams*; or for a Reaſon that appeared very convincing, to wit, that though they

they neither uſed *Tents* or *Dilaters*; yea, in very expreſs Terms diſcharged them, yet they often ſucceeded in their Cures, to the Diſgrace of *Surgery*. However, it muſt needs be, that the Inventers of theſe *Balſams* did diſcover ſome Inconveniences in the Uſe of *Tents*, ſince they have altogether forbidden to employ them: Now, I ſuppoſe it will eaſily be believed, that thoſe Men or Women who are employed in ſelling them, are not the firſt Authors; and that thoſe who firſt uſed them, were not altogether deſtitute of Knowledge.

Diapalma is one of the Plaiſters moſt commonly uſed in the Hoſpitals of the Army: When it is rightly made up and diſſolved, as was ſaid before, it is not to be diſpiſed: And I add to it, when the Caſe requires, a little of *Emplaſtrum de Betonica*.

Emplaſtrum Divinum, *Manus del Gratia Dei*, &c. are *Plaiſters* of a ſingular Vertue; but very ſeldom to be found made up with all the requiſite Fidelity.

I have nothing in particular to ſay concerning *Cataplaſms*, according to the ordinary Method: It belongs to the prudent *Surgeon* to give them what Form and Qualities he thinks fitteſt for the preſent Occaſion.

I have often found much more Advantage from the Uſe of *Emplaſtrum Tripharmacum* ſpoken of before, and *Diapalma diſſolved*, which don't ſo much clog the Parts to which they are applied, nor hinder Tranſpiration. *Anodyne*

Cataplaſms, ſuch as that of the *Crum of Bread*, and others of that Nature, are very uſeful in great *Inflammations* of Wounds, after the neceſſary *Diverſions* have been performed; they allay the Heat of the *Blood*, extinguiſh the Acrimony of *Salts*, and relaxate the *Skin*. *Unguentum Santalinum* may likewiſe be uſed to good Purpoſe: And when the Pain is partly removed, I then uſe *diſſolving Medicines*, which at firſt might have encreaſed the *Inflammation* and *Fermentation*.

Before I put an End to this Diſcourſe, I muſt remark, that it is very requiſite for a Surgeon of a Field-Hoſpital, or of an Army, who may ſometimes be ſhut up in a beſieged Place, ill furniſhed with Medicines for the Uſe of the Wounded, to underſtand how to make up ſimple and eaſy Remedies with few Things, ſuch as thoſe beforementioned for *Wounds*, and theſe of which I ſhall afterwards ſpeak for *Ulcers*, which in time of Need may ſerve for all: *Brandy*, which is the ordinary Refuge in want of other Remedies, may alſo be lacking. 'Tis the Part of a prudent Surgeon wiſely to provide for this Neceſſity, and to accommodate himſelf to the time, by dreſſing the Wounded ſeldom, and according to our *Method*: Thus fewer Medicines will be uſed, a little will go a great way, and every one will have Reaſon to be ſatisfied.

A great Number of *Abſceſſes*, *Wounds*, *Ulcers* and *Fractures* of all Sorts, that have been under our Hands in this Hoſpital, were cured ac-

according to this *Method*; wherein there is nothing but what is *gentle and eaſy*. All the *Amputations* that we have performed were dreſſed only once in two or three Days, during the whole time of the Cure, with our ſimple Remedies, and that with very good Succeſs. Thoſe who have been ſo happy as to avoid the malignant Influence of the contagious Steams that have ſo long prevailed in the *Air*, have experienced the Comfortableneſs of this *Method*, by the Suddenneſs of their Cure, completed without any *Exfoliation* of the Extremities of the Bones; which infallibly had followed on *frequent Dreſſings*.

I commonly uſe a *Button of Vitriol* to cauterize the Veſſels, and ſtop the *Bleeding*, which I ever found ſucceſsful; neither did the Flux of Blood ever return. The two Stitches with a Needle, made croſs-wiſe upon the *Vein* and *Artery* are very ſure; this is a common way, which I have ſometimes, and ſtill do follow; But the falling of that *Suture* is ſometimes ſo tedious, that it exhauſts the Patience, both of the wounded Perſon and the Surgeon; though after all, its uſe is very ſafe: For the *Bleeding* is leſs to be feared this way, which is quick and gentle, than any other. The *actual Cautery* is now out of uſe, unleſs it be in *Amputations* performed on the *Dead*.

Tho' in the Cures of the *penetrating Wounds* of the *Thorax*, ſpoken of in my ſecond Part, I was not obliged to perform the *Operation* of

the *Empyema*, yet I have had Occaſion to uſe it on many other wounded Perſons, ſince I embraced this *Method:* For take what way, or what Care you will, it is oftentimes abſolutely neceſſary. When the Cavity of the Breaſt is full of Blood, and the Orifice of the Wound high, it is not then ſafe to attempt to empty it by the way of *Urine*, which might be too ſlow, and is too uncertain; but we muſt without Delay fall about that *Operation.*

I will not here deſcribe the Manner of performing this, or other *Operations*. M. *Verduc*, and M. *Charriere*, have lately afforded ſufficient Means of Inſtruction in this Affair. This I will only ſay on the Subject in hand, that this *Operation* ought always to be performed on that Side where the Effuſion of the Blood is; and if it is found to have been on both Sides, and one *Opening* does not give the Eaſe that is expected, tho' the *extravaſated Blood* is diſcharged, we muſt make an *Opening* alſo on the other Side, after the firſt is carefully cloſed up, and the Patient has had ſome time allowed to recover his Strength. Sometimes I am obliged to uſe *Tents* for the firſt Day, leſt the Diviſion of the *Pleura*, that was but newly made, ſhould unite again; and ſo there would be Neceſſity of a new Operation the next Day, to let out that *Blood*, which being coagulated, could not at firſt be brought away, and can hardly be evacuated by any other means. As for thoſe *Openings* made in the Body by *Bullets*

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in *Gun-ſhot Wounds*, there is no need of Tents to keep them open, for they cannot be cloſed up till the Eſchar is ſeparated.

I have already ſaid, that in the Openings or Inciſions which I make to evacuate the Collections of Matter, or *Abſceſſes* in the *Thorax*, occaſioned by a *Pleuriſy* or *Peripneumonia*, I uſe *Tents* without a *Point*, or blunt *Tents*, in the firſt Days, to keep the *Matter* from coming out all at once, otherwiſe the Place that was poſſeſt by the *Matter* would ſoon be filled with *Air*; which being ever colder than the inward Parts of the Body, might occaſion *Coagulations*, *Suffocations*, and *Swoonings*. Moreover, when a great deal of *Blood* is extravaſated, it muſt be let out by Degrees. Now on ſuch Occaſions *Tents* are neceſſary: But that being once over, I lay them aſide for good and all, that a free Paſſage may be given to the *Matter*, that the Generation of a Calloſity, about the Sides of the Opening may be prevented, and that nothing may be left to hinder the Re-union.

By this *Method* the wretched Patient is delivered from a great deal of *Trouble*, *Pain* and *Vexation*; being enabled hereby to enjoy a Repoſe, which otherwiſe he could never have expected: And by freeing him thus from *Pain*, what innumerable Accidents are avoided?

Had not Charity and Patience prevailed in this Place, and reſtrained us from cutting off, without further Delay, Members that were only gangrened by an Extremity of Cold, as

other Surgeons of *Hoſpitals* have done, this of *Briançon* would have been full of Invalids. For about the End of the Campaign, in the Years 1692, and 1693, a great Number of ſick Perſons were brought thither from *Pignerol* and *Oulx*, who in paſſing the Mountain *Geneure*, were in ſuch manner ſeized and penetrated with the Cold, in the Extremities of the Body, that a total *Loſs* of Senſe, and alſo a *Gangrene* did enſue; the moſt Part of whom were nevertheleſs cured without *Amputation*, thoſe only excepted that had been before worn out with long Sickneſs.

CHAP. VIII.

Of Gun-ſhot Wounds.

SINCE *Wounds* are the principal Subject of this little Treatiſe, 'tis not proper that thoſe inflicted by *Fire-Arms* ſhould here be forgotten. Wherefore I ſhall ſay ſomething of them in this Chapter.

Gun-ſhot Wounds are acknowledged by all to be very troubleſome, becauſe of the *tearing*, and of the *diſordering* the Fleſh, occaſioned by the *Bullet*, the ſtop put to the *Circulation* ſo far as they reach, the *Havock* that attends them, and the *Obſtructions* they occaſion; all which are but too too able to produce very *grievous Accidents*. *Fluxions*, *Mortifications* and *Gangrenes* are here very much to be feared;

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to prevent which, I at firſt give Breathing to the Wound with pretty large and deep Inciſions, according as the Nature of the Part, and Bigneſs of the Wound do require. I do my utmoſt to draw out the *extraneous Bodies*, if there are any, putting the wounded Perſon in the ſame Poſture wherein he received the Wound: Afterwards I dreſs it according to my Method, and ſeaſonably perform the requiſite Diverſions. A *Flux* of *Blood* is almoſt never to be feared till the Eſchar be fallen, unleſs ſome great Veſſel be wounded.

Nevertheleſs, I can truly affirm, that there never happened to me any Flux of Blood in *Gun-ſhot Wounds*, ſince I laid aſide the Uſe of *Tents*; for according as the Eſchar is diſſolved and comes away, a *new Fleſh* is bred without any Hindrance, and covers the wounded Veſſels, which can't be when it is preſſed by *Tents*. This is a Truth ſo evident, that I hope no Man will call it in queſtion.

Diet ought always to be rightly ordered; and if notwithſtanding all our Care and Precaution, dangerous Symptoms do follow, we muſt endeavour to eaſe and relieve the Part, by making many *Scarifications* thereon, in order to give a Vent to the *extravaſated Blood*, and to hinder its *Stay* and *Fermentation*. But conſidering that moſt of the Accidents that happen, are more or leſs troubleſome, according to the different Bigneſs of the *Contuſion*, I do what I can to diſſolve it as ſoon as poſſi-

ble, and to reſtore the *Humours* to their uſual Motion; for according to the Definition we have laid down in our firſt Part a Contuſion *is a Diſorder of the* Fibres *and* little Veſſels, *that changes the Regularity and Situation of the Pores:* But this is often accompanied with an *Effuſion*, or Extravaſation of *Blood*, which preſſing upon the *Veſſels*, hinders the Courſe and Motion of the *Humours* and *Spirits*. The *Accidents* that follow in this laſt Caſe, are much more troubleſome; wherefore, without expecting the Effects of diſſolving Medicines, I forthwith have Recourſe to *Scarifications*; for *Mortifications* oftentimes ſurprize of a ſudden. But, after all, as things come not always to this paſs, ſo I ſome times uſe *diſſolving Medicines*.

We have known a very warm *Embrocation* with *Oil of Roſes*, to which was added a little of that of *Turpentine* and ſome *Spirit of Wine*, produce exceeding good Effects: It begins the *Diſſolution*, relaxes the *Skin*, and diſpoſes the Part to receive afterwards the Impreſſion of the Plaiſters; ſuch as the *Tripharmacum Juberti*, *Diapalma* diſſolved as we have ordered, freſh *Cow-dung* fried with volatile Salts, as alſo that of other Animals: The Roots of *Briony* infuſed in *Spirit of Wine* are in this Caſe very proper.

Diſſolving Cataplaſms are ſometimes very ſeaſonable, provided they be not too emplaſtick; and if in ſpite of all our Care a *Gangrene* ſhould follow, we muſt uſe the Reme-

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dies which were deſcribed under that Head. But this Accident never yet fell out in any of the Wounds, whereof we had the firſt Dreſſing; and I can aver, that tho' *ſimple Gun-ſhot Wounds* are dreſſed in this Hoſpital as *Excoriations* only, yet are they always cured with a ſurprizing Quickneſs; we however ſtill perform all the neceſſary Diverſions. The Remedies we uſed may be ſeen in the Relation of the Cures.

CHAP. IX.

Of Burnings.

THE *Accidents* occaſioned by *Gun-powder* might afford us Subject of much Diſcourſe upon *Burnings*; but I deſign only to ſpeak a Word or two of them, that I may thence have occaſion to point forth the *Remedies* I uſe in their Cure.

The *Tallow* of which they make Candles, melted with the *Oil* of *Walnuts* to the Conſiſtence of an Ointment, will anſwer all the Intentions propoſed in this Matter. I have not found any thing either ſo effectual, or ſo eaſy: It will terminate the *Empyema*, and cures generally all Sorts of *Burns* whatever, in a very ſhort time: In fine, this is the Remedy which we ordinarily uſe. *Benjamin*, *Unguentum Populeum*, and the *Yolks of Eggs*, may be uſed when this can't be had. There are but very

few Surgeons, who have not always ſome *particular Remedy* for *Burnings*, ſome more, ſome leſs effectual. *Etmullerus* and other Authors have given a great Number of very good ones; and M. *Verduc*, in his *Patheology*, explains their *Nature* and their *Differences* in a very clear and intelligible Way.

A little time after the Declaration of War, an Accident happened in the Valleys of *Lucerne*, which afforded us many frightful Spectacles. The Guard-houſe of the *Fort* of *Tour*, called St. *Maries*, fell down upon about thirty Soldiers, as they were warming themſelves about a great Fire; of whom twenty, or thereabouts, were buried with the Ruines, in the Chimney, by the Fire. A good deal of time was ſpent before they could clear away the Stones and the Rubbiſh, and get out theſe poor wretched Creatures. Some were found dead and roaſted; others were brought into the Hoſpital of *Lucerne*. A Plaiſter as big as a Bed Sheet, was ſcarcely ſufficient to dreſs them. Two or three died, and five or ſix were cured by the Aſſiſtance of *Cordials*, *Diaphoreticks*, and *abſorbing Medicines*, taken inwardly to facilitate the opening of Obſtructions; while outwardly the moſt proper *Ointments* were uſed to allay the Pain, and diſſipate the corrupt Matter, to which I cauſed to be added a little *Camphire* and ſome *Yolks of Eggs* mixt together. To conclude, after very frightful Suppurations, the Cure was compleated; but they

they were, for the moſt part, like ſo many Serpents, all obliged to caſt and change their Skin.

CHAP. X.

Of Ulcers.

ETmullerus is of Opinion, that the Cauſe of *Ulcers* proceeds from an *Acid*, whereby the immediate Nouriſhment diſtributed to the Part is corrupted, and loſing its oily and balſamick Nature, becomes ſore, and altogether unfriendly to the Part that it ought to nouriſh, and ſo conſiderably encreaſe the *acid Ferment*, and augment its Activity.

According to this Definition, a *topical Remedy* well accommodated to the kind of the Diſeaſe, and that deſtroys *Acids*, and repairs the balſamick Nature of the *nutritious Juice*, is ſufficient to bring this Sort of Diſtemper to a perfect Cure. I have often in this manner cured many poor afflicted Creatures, without the uſe of *general Remedies*. But not to make any Change in the manner of Dreſſing. I ſay in the firſt Place, that *Ulcers* are but too common in the *Hoſpitals* of the *Army*: The ill Diet of the Soldiers, their *Irregularities*, their *Fatigues*, and their unavoidable *Naſtineſs*, are more than enough to torment ſuch as are very obſtinate, and difficult to be cured. Secondly, we have in this *Hoſpital* followed a *Method*, whereby in a little time a great Number

of *Ulcers* were cured. For after *general Remedies* and ſome ſlight *Diverſions*, I uſed a Decoction of *Walnut* Leaves with a little *Sugar*; in this I dipt *Pledgits*, which I applied moderately hot, letting often three Days paſs over without taking off that Dreſſing.

Many Perſons in *France*, I know, have kept this *Compoſition* as a great Secret; but I thought it would have been inconſiſtent with *Charity*, not to publiſh its Vertues, and the manner of making it.

I have experienced on a *thouſand* Occaſions, that it mightily cleanſes, and breeds *Fleſh*; mortifies and devours *Acidities*, reſiſts *Putrefaction*, plentiful *Suppurations*, and conſumes the *Moiſture* that hinders *Re-union*: In fine, it hath Vertues that ſurpaſs Belief, and its Effect is more quick than that of all the *Ointments* and *Cerates*, with which *Apothecaries* Shops are ſtored, and which are commonly uſed in curing of *Ulcers*, but often to no purpoſe. In the mean time, I dare affirm, and that truly, that in the Places where I have uſed it, all ſuch *Ulcers* as were formerly thought *incurable*, were thereby cured in a very ſhort time.

Tho' I do but very ſeldom make any uſe of *Injections*, nevertheleſs, I have been ſometimes obliged to have recourſe to this Remedy, from which I have reaped more Advantage than from all thoſe uſed in Practice; and eſpecially in hollow and deep *Ulcers*: As alſo

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in large *Abſceſſes* of fleſhy Parts, where there is great *Putrefaction*, and ſometimes a conſiderable Cavity.

The *Scriptural Balſam*, ſpoken of before, which is only an equal Quantity of *Oil* and *Wine*, boiled to the Conſumption of the latter, is alſo an excellent Medicine for *Ulcers*: With this Remedy alone I have cured great Numbers.

Many *Authors* there are, who have left us an Account of a vaſt Number of *Remedies* which are uſed in *Hoſpitals*; for which Reaſon I will ſay nothing of them here, where my Deſign is only to make known thoſe I uſe in my own Practice.

By what I have ſaid of the ſeldom dreſſing of Wounds, it may be eaſily gueſſed, that I am not for frequent Dreſſing of *Ulcers*: For if they proceed from an *Acid*, as *Etmullerus* thinks, we ought to endeavour not to promote the Coagulation, by admitting the *Acid* of the *Air*, which by inſinuating its pointed Particles into *Ulcers*, corroborates the Cauſe, renders them putrid, ſanious and incurable.

'Tis not without Ground, that *Galen*, as hath been declared already in the firſt Part, in his fourth Book *of the Compoſition of Medicines*, *Chap.* 4. hath ordered to dreſs *Ulcers* but once in three Days: And I believe it would be yet better, to do it more ſeldom, unleſs ſome urgent Cauſe require it; ſuch as the Seaſons of the Year, the Badneſs of the Humours, or ſome other evil Diſpoſition of Body.

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We may obſerve, that ſuppurative Medicines, uſed in dreſſing *Ulcers*, are extreamly pernicious: For the *Matter* is but too plentiful, and requires to be leſſened, and dry'd up, if we deſire a perfect Cure. The Application of *topical Remedies*, when well choſen, oftentimes performs in this Caſe what neither *Diverſions* nor *internal Medicines* could do; and of ſuch there are good ſtore; but it depends only on the *Prudence* and *Skill* of him that preſcribes them, to uſe them ſeaſonably; for we can expect no *deſirable Effects*, either from one kind or another, but according as they are properly applied.

Unguentum Apoſtolorum mixed with *Unguentum Egyptiacum*, is not to be deſpiſed: It conſumes all the corrupted and the ſuperfluous Fleſh. I have often applied this, before I made uſe of our *Lotion*.

The *Aqua Phagædenica* or *Lime-water*, mixt with *Salt of Lead*, or *Sal-Armoniac*, and *Aqua Cæleſtis*, have alſo ſerved us on ſuch Occaſions; for if one Remedy fails, as it often falls out, we muſt have recourſe to another.

CHAP. XI.

Of Simple Fractures.

IN the Cure of *Simple Fractures*, commonly four things are propoſed to be done. Firſt, to

to ſet the Bone, or bring it to its natural Figure. Secondly, to keep it ſo, with fit Dreſſings. Thirdly, to take care of the neighbouring Parts. And, fourthly, to give the afflicted Member a convenient Poſture.

Firſt then, *Extenſion* is almoſt ever neceſſary, to reduce the *Bone* to its natural State, which is to be more or leſs vigorous, according to the Quality of the Fracture, the Nature of the broken Part, or the Age and Sex of the Patient: But we muſt obſerve not to make Extenſion, when Inflammation, or other Accidents appear, till they are either removed, or conſiderably abated.

As to the ſecond thing, which is the neceſſary Dreſſings, I have always obſerved the Direction of *Hippocrates*, in uſing three *Bands*, as he did, in *Simple Fractures*: *Celſus* employed ſix, but theſe, in my Opinion, were too many for the Part: Wherefore, I choſe rather to follow the Practice of *Hippocrates*, approved of by *Galen*, in the fifth Chapter of his *Book* of *Method*.

Moſt of thoſe who practiſe Surgery differ in the uſe of *topical* Remedies. Some apply all dry; as for my ſelf, who am not confined to the Way of the Ancients in this Matter, I have found that the *Glair* and *Yolk* of an Egg, beat up together with a little Oil of Roſes, will anſwer all Expectations: It is aſtringent, anodyne and diſſolving. The reſt of the Dreſſings I uſe dry, unleſs an Inflammation, or ſome ſuch

ſuch thing, oblige me to the contrary: For as it is my Way to dreſs my Patient as ſeldom as poſſible, I apply the Bandage dry, that it may be the faſter, and leſs apt to ſlacken.

Plaiſters and emplaſtick Medicines employed in Fractures, ſtop the Pores of the Skin, keep in the Vapours that occaſion Itching, and ſo oblige to take off the Dreſſings oftner than is expedient; wherefore I endeavour to avoid whatever may cauſe that Accident.

Hippocrates uſed to take off the Dreſſings three Days after Application. Many ſtay till the ſeventh; and for my ſelf, I delay it as long as ever I can. Experience has taught me, that it is moſt advantageous for the Patient not to be dreſſed till the *Callus* is entirely formed, unleſs the Bands are looſen'd, or ſome unexpected Accident hath fallen out, ſuch as Itching, and diſordering of the reduced Bones. I could make up a great Number of Soldiers that have departed from this Hoſpital, cured of *ſimple Fractures* of all Sorts, according to my *Method*; but I ſhall content my ſelf with the Relation of the following Cure.

A Soldier called *La Tulippe*, of the Regiment of *Conde*, was brought to this Place, having his right Thigh Bone broken about the middle, and ſhattered. This unlucky Accident befel him as he was ſleeping upon Mount *Genevre*, under a Tree, which at the ſame time was cut down, and fell upon his Thigh. So ſoon as he was committed to my Care, I reduced

duced the Bone by a vigorous Extenſion, and applied a Linen Cloth dipt in an Egg, beat up with a little *Oil* of *Roſes*, and a ſmall quantity of good *Vinegar*, upon which I put ſome *Compreſſes*, then 3 or 4 pretty long *Rollers*, with ſome *Splints* of Paſte-board; encompaſſing all with a piece of Paſte-board, and laſt of all, the *Junks*, with what belongs to 'em. *Diverſions* were performed, and a moderate *Diet* order'd. I let the *Dreſſings* ſtay on for 20 Days, at the end of which I found the Part in its right and natural Diſpoſition. At this Dreſſing I uſed *Emplaſtrum pro Fracturis*, and applied the *Bandage* as before, with *Splints* of Wood, and the other things neceſſary. In 20 Days after I took off the Dreſſings a ſecond time, and found all things to my Satisfaction, and 20 Days more paſſed before I opened it again; ſo that in 60 Days I dreſt him only three times, not reckoning the firſt. He began now to riſe and to walk on Crutches, and we continued ſtill the Dreſſings upon his *Thigh*, omitting the *Junks*. In fine, after he had remained ſome time in the Hoſpital to recover his Strength, he returned to his Regiment.

'Tis convenient to obſerve, that in *ſimple Fractures* of the *Thigh* we ought always to uſe on the hinder Part, a *Splint* of the breadth of 2 or 3 Fingers, to ſuſtain the Bone, which without this Precaution would be in danger to bend in Hoſpitals of the Army, where the looſe Straw on which the Soldiers lie, is apt to

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ſlip from under them, and ſo to make Holes or Furrows capable to diſorder the jointing of the broken Parts, unleſs they be ſupported by ſomething that is ſufficiently ſtiff.

I have no Credit to give to the inward Remedies, which ſome uſe for breeding a *Callus*; ſuch as the Juice of *Cowſlip*, of *Agrimony*, or its *Root*, taken in Drink; and many others to be ſeen in ancient Authors. *Nature* is the Architect and principal Framer of the *Callus*, when ſhe is allowed that *Repoſe* which is neceſſary to her Acting; however, I don't diſapprove the uſe of incraſſating Nouriſhment on ſuch Occaſions.

In the third Place, as to the *neighbouring Parts*, when the *Fracture* is much ſhattered and very painful, it is exceeding advantageous to apply *Defenſatives* to the *ſuperior Parts*, and the *Emunctories*. The Liniment made of an *Egg* beat up with *Oil of Roſes*, and ſometimes with a little of that of *Turpentine*, and ſome *Vinegar*, when the *Contuſion* is great, anſwers alſo to this Intention, together with Embrocations with diſſolving Oils. Above all, *Diverſions* are of great Efficacy to prevent and remove *Accidents*.

As for the fourth Head, it is of great Importance to the fractured Member to be placed in a *convenient Situation*, upon which very often depends the good or ill Succeſs of the Cure. In *Hoſpitals* of the *Army*, all the neceſſary Conveniences are not to be found; but

but the *Ingenuity* of the *Surgeon* ought to make up that Defect. The greateſt Part of the Wounded are only laid upon Straw, which has not Stability enough to keep a Member long in the ſame Situation; 'tis this Conſideration that obliges me, after applying the three Bands ſpoken of above, to uſe *Splints* in the firſt Dreſſing, unleſs the Pain engage me to defer them; and afterward, I make all ſure with a fourth Band: I add alſo the *Junks*, and the *Sole*, with what belongs to them, if the *Fracture* is in the *Thighs* or *Legs*; if in the *Arm*, I uſe the *Sling*; as alſo, if in the *Fore-Arm*, the Caſe of Paſte-board; all being well tyed on, ſecures the Part in ſuch ſort, that there is no hazard of its being diſordered. This is the Method I uſe in *ſimple Fractures.*

CHAP. XII.

Of Compound Fractures.

COmplicated Fractures are very hard to be cured. In the ſecond Part of this Treatiſe may be ſeen the manner how a good number of ſuch were brought to a perfect *Cure:* But we muſt not always flatter ourſelves with Expectations of the like good Succeſs, chiefly when part of the Subſtance of the *Bone* is loſt. The *Youth* and *good Conſtitution* of the Patient are great Hopes on ſuch Occaſions. The *Method of dreſſing gently, ſpeedily* and *ſeldom*

dom, ſaves a great deal of *Time*, and prevents very many *Accidents*. *Nature*, when at liberty, and acting without Reſtraint, does things very ſurpriſing, and ſuch as we would have judged to be impoſſible.

The Generation of a *Callus* in a *ſimple Fracture*, is undoubtedly more ſpeedy than in a complicated one. In the firſt the *Heat* is kept in and united, and acts with more Strength and Quickneſs. The Bone being covered by the *Teguments*, is ſheltered from the Injuries of the *Air*: For according to *Fabricius ab Aquapendente*, Part I. *Book* 4. *Chap.* 9. the *external Air* alters the *Bones*, and deſtroys their *natural Temperament*: Beſides, *Nature* is not diverted nor diſturbed in her Action by *Diſſipations* or *Suppurations*. All conſiſts in the reducing of the *Fracture*, or rightly ſetting the *Bone*, as we have taught in the former Chapter.

From theſe Reaſons a Conſequence may be drawn, to juſtify my *Method* in reſpect of *compound Fractures*: For by omitting *frequent Dreſſing*, and taking Care to hinder the Acceſs of the *Air* to ſuch Wounds, I prevent all the *Accidents* it might occaſion, as great *Suppurations*, *Alterations*, *Rottenneſs*, *Fluxions*, *Pains*, and generally whatever prolongs the *Cure*, and often makes the Wounds incurable.

In *complicated Fractures*, when there is great *Suppuration*, the *Matter* muſt undoubtedly be mixt with the *nutritious Juice* of the Bones, which

which from the firſt Moment of the *Fracture* begins to cover the Ends of the Bone, and form a *Callus*. *Tents* and *Dilaters*, with which commonly theſe ſorts of Wounds are filled, do by their Contact hinder this Work, which ought not to be interrupted. *Long* and *frequent Dreſſings* give time for the *Air* to penetrate into the Wounds, whereby the Nouriſhment of the *Bone* loſes what was ſpirituous in it, coagulates, breeds Obſtructions, or is turned into *Pus*. Moreover, this *Method* not only occaſions always *Irritations* and *Pains*, but alſo deprives the Sick of that *Reſt* which is abſolutely neceſſary to them.

Fabricius ab Aquapendente, in the *eighth* Chapter of the ſame *Book*, treating of *complicated Fractures*, where the *Bone* is not uncovered, orders the Lips of the Wound to be joined together, and to be dreſt but once in 3 Days. And in the *tenth* Chapter of the ſame *Book*, ſpeaking of *complicated Fractures*, where the *Bone* is laid open, directs to join the Lips of the Wound by Stitching or otherwiſe, and afterwards to go on with the Cure, as in a *ſimple Wound*.

I am not therefore the only Perſon that has dreſt *complicated Fractures* after this manner. It may be obſerved alſo, that *Rhaſis* and *Serapion* uſed this *Method* in the Cure of *Wounds* of the *Head* with a *Fracture* on the *Skull*; for they ſay, that *Wounds* of the *Head* muſt be ſtitched up, even where the Skull is broken quite thorough.

If this may be done on ſuch Occaſions, much more in complicated Fractures of other Parts of the Body. Now, the Stitching uſed by theſe Authors in *Fractures* of the Skull, was for no other End, but to exclude the *Air*, which might have proved hurtful to the *Brain*, the Membranes and the Skull.

Galen and *Avicenna* adviſe Stitching in ſuch a Caſe, but *Hippocrates* forbids it in his *Book* of *Wounds* of the *Head*. For myſelf, I very rarely uſe it in any Part of the Body, tho' I don't diſapprove it; but in *Gun-ſhot Wounds* it can't be practiſed, for many Reaſons known to every body.

Fractures with a *Wound*, are in general very troubleſome; but thoſe cauſed by Fire-Arms more than others; and they are alſo more or leſs hard to cure, according to the Part wherein they are; for the *complicated Fractures* of the *Thigh*, which we have had under our Care in this *Hoſpital*, were not ſo ſoon cured as thoſe of the *Leg*; nor theſe, as the Fractures of the *Arm*, and ſo of others; tho' in all, the ſame Method was always followed.

As to the difficulty of curing thoſe of the *Thighs*, it is often occaſioned by the Inconveniences to be met with in the Hoſpitals of the Army; for there is difficulty in giving *Clyſters* there, where we cannot afford the Accommodations neceſſary for voiding the Excrements; becauſe wanting ordinarily Servants handy and charitable enough to aſſiſt the Patients on

ſuch Occaſions, they lie in their Naſtineſs, and are indiſcreetly and violently mov'd; by which means the Cures become tedious and difficult. For we may be ſure that *Nature* acts with no leſs Diligence and Wiſdom upon theſe, than upon other Parts.

I make no queſtion but many Perſons will condemn this Way of dreſſing *complicated Fractures*, which poſſibly will appear to be very new; for I own I never ſaw it uſed before by any. But we ought not to be too forward to affirm, that what we have not ſeen, is not. There are without doubt many Secrets both in *Nature* and in *Arts*, which would be of notable Advantage were they known to us.

Thoſe who will give themſelves the trouble exactly to follow this *Method*, may extricate themſelves from the Errors with which their Minds were prepoſſeſſed againſt it.

CHAP. XIII.

Of Diſlocations.

IT is in the Cure of *Diſlocations* that *Art* has the Advantage over *Nature*, becauſe *that* alone accompliſhes the Cure without the Aſſiſtance of this. The *Operation* of the *Hand*, *Machines* and *Bands*, are the Means that Surgery employs to reduce them.

Tho' this Subject would afford an ample Field to Theory, yet I ſhall remit the young Surgeons

Surgeons to ſuch *Authors* as have deſignedly treated thereon. I will only ſay, that it is neceſſary to be thoroughly inſtructed in the Knowledge of the *Bones* and *Bandages*, and that, if poſſible, we muſt not loſe one minute of time to reſtore the Parts that are diſlocate, before the *Accidents* ſupervene, that oftentimes hinder the *Operation*. For the Head of the *Bone* that is out of its Place commonly preſſes on nervous and ſenſible Parts, and ſometimes ſqueezes together the Veſſels that carry the Blood for the Nouriſhment of the Parts, which occaſions a kind of *Palſie* and *Atrophy*, and ſometimes a *Fluxion*. Beſides, the Cavity of the receiving Bone may be filled with the *Synovia*, or Humour that moiſtens the Joints, which if it be coagulated there by ſome Acid, will hinder the Head of the Bone to go into that Place from whence it came out; in which caſe we may reckon the re-placing of the Bone to be impoſſible. Wherefore we ought at firſt to employ all our Care to procure its Reduction.

The Inſtruments neceſſary to reduce *old Luxations*, or ſuch new ones as require great Force, are not all to be found always in Hoſpitals of the Army; but the Hands of Servants, and the Ingenuity of the Operator, ought to make up that Want as much as poſſible.

Guy de Chauliac, *Fabricius ab Aquapendente*, *Pareus*, and many others, have ſufficiently explained the manner of *reducing Diſlocations*.

A

A *young Surgeon* ought to omit nothing that may conduce to his Accompliſhment herein; for 'tis by theſe ſimple Operations the Vulgar diſcern the Skilful from the Ignorant, becauſe theſe Sorts of Performances are altogether Chirurgical, and require only the Dexterity of the Artiſt to accompliſh them.

I have found by Experience, that an Egg beaten up with *Oil of Turpentine* and a little *Vinegar*, is very helpful to the laxated Parts to which it is applied; nay, that it is a Remedy ſufficient to anſwer all Intentions. *Aromatick Wine* may be uſed when this can't be had. If your Deſign is only to ſtrengthen, the Plaiſter for *Fractures* will do the Buſineſs.

Bleeding, *Clyſters*, and a convenient Courſe of *Diet*, ought not to be neglected in great *Laxations*, attended with *Contuſion*. Theſe Remedies often prevent being ſurpriſed with Accidents, and remove them when they happen.

CHAP. XIV.

Of the Relaxation of the Joints.

SOldiers, who commonly lie on the Ground during the Campaign, in very ſevere Seaſons, are liable to have their Bodies ſtuffed with ſuperfluous Humours, wherewith all the Parts in general are ſoaked; but in a ſpecial manner they very often fall upon the Joints,

where ſoftening and relaxating the Ligaments that kept them faſt, they do thereby occaſion Laxations of the Parts.

This kind of Diſtemper is very hard to be cured, and will ſcarce yield to Remedies; we have had of them under our Hands in this Hoſpital, which have occaſioned us a great deal of Trouble, and but little Credit. *Hippocrates* in ſuch Caſes adviſes the Uſe of the *actual Cautery*, and *Galen* after him is alſo for the ſame Operation, in order to drain and conſume the ſlimy and watery Humours, ſtrengthen the Skin, and faſten the Joint.

Hippocrates for this Purpoſe uſes a Rope of raw Flax, which being ſet on fire, yields a Coal like that of the Match uſed in Armies. And *Actius*, according to *Archigens*, did it with the Roots of *Fullers-weed* and *Birthwort*, probably to render the Operation more gentle. 'Tis performed on the Place where the Head of the Bone bunches out.

This Remedy is rude; we never uſe it in this Hoſpital, becauſe it frightens the Patient: Nevertheleſs theſe Diſtempers are ſometimes ſo painful, and withal ſo obſtinate, that thoſe who labour under them willingly ſubmit to any thing to be releaſed therefrom.

Fabricius ab Aquapendente relates, That after he had in ſuch a Caſe, to no Purpoſe, uſed very many things, the Patient was cured with a Plaiſter of a certain Herb, which he believed was *Hearts-eaſe*, that was applied by a *Quack*.

As

As for myſelf, though I don't diſapprove the way uſed by the Ancients in this Caſe, yet I am of Opinion, that it ought not to take Place till more gentle Methods are tried. The Courſe we uſed to take at firſt, is to try whatever may heat, cut, dry, and ſtrengthen. The *Oil* of *Lavender*, the *Fat* of the *Mountain-Rat*, and *Spirit of Wine*, or the Queen of *Hungary*'s Water, made up in form of a Liniment, and applied very warm, give great Aſſiſtance in ſuch Caſes; to which may be added a little *Oil of Turpentine*, which attenuates and opens the Paſſage, and ſo makes way for diſſolving and drying Medicines.

But when I find theſe Remedies ineffectual, I uſe ſuch things as irritate, *Veſicatories*, and cauſtick Herbs, ſuch as *Spurge*, *Celandine*, &c. which, by exaſperating the Pain, may cauſe a Fluxion upon the Part affected, that ſo the Matter being after digeſted, and ripened by a Fermentation, all may be happily ended by an *Abſceſs*; as it ſometimes falls out.

When we have brought things to this paſs, we muſt not fail, without Delay, to reſtore the *Bones* into their *Cavity*, and to fortify the Joint with *aromatick Wines*, quickened with Spirit of *Wine*, or elſe with *Man*'s *Greaſe*, and a little of the Queen of *Hungary*'s Water, mixt and applied hot; and generally we may for this Purpoſe uſe any thing that may ſtrengthen the *Member*, and waſte the *Moiſture*. In the mean time, the Part muſt always be ſupport-

ed with a good *Bandage*, and ſurrounded with Compreſſes and Bolſters, to command the Bone, and kept it faſt in its Place: Moreover, the Patient muſt be very careful to keep himſelf quiet, and muſt obſerve a *drying* and *attenuating* Courſe of *Diet*.

CHAP. XV.

The Concluſion of the third Part; with ſome very uſeful Remarks.

MY principal Deſign in this little Treatiſe, being to introduce, for the Relief of *wounded Perſons*, a *gentle*, *ſpeedy*, and *eaſy Way* of curing their Diſtempers, I have endeavoured to confirm the ſame, as much as lay in my Power, by *Reaſon* and *Experience*. I am not ignorant, that this Part of *Surgery* which concerns Wounds, does not exhauſt its Bounds, and that I have only ſlightly touched on other things, that are of no leſs Importance.

My Intention was not to tranſcribe from other *Authors*, and therefore I thought it enough, ſuperficially only to declare my Thoughts of the other Parts of *Surgery*; wherein I have likewiſe confined myſelf to that which is moſt common, and moſt neceſſary, and was withal moſt particularly known to me, not being willing to ſpeak of many things about which I had nothing new to advance. I think I have done what I deſigned, and am

ambitious of nothing elſe, but that my *Intention*, which I have ſincerely declared, may have all the Succeſs I could wiſh it.

The Courſe I take to prevent the Scaling of *Bones*, explained in the firſt Part of this *Book*, I learned from *Experience*; I hope alſo it will be found very uſeful and neceſſary, in dreſſing *Wounds* where the *Bone* is uncovered.

I drew alſo from the ſame Fountain, the manner of Dreſſing after the *Operation* of the *Trepan*; and yet I doubt not but it will have the Fate to be condemned as new: However, I will not ſpend time in anticipating the Objections of others, by anſwering them beforehand: For whatever might be ſaid in commendation of the *Plate*, which was never uſed by any before me, would only prove an Inducement to excite the Criticks to decry it.

Experience and *Reading* have informed me, that the *Air* is a mighty *Hindrance* to the *Cure* of Wounds; and I have endeavoured to find out an eaſy way to hinder its *Acceſs*, eſpecially in Wounds where the *Scull* is cut: For 'tis evident, that the moſt Part of the *Accidents* that attend ſuch Wounds, are occaſioned only thro' the little Care taken to keep off the Aſſaults of the *Air*, which are promoted by the Cuſtom of *long* and *frequent* Dreſſings.

I have ſeen Surgeons ſpend whole Hours in dreſſing *Wounds* of the *Head*, accompanied with a Fracture of the *Scull*, to looſen, break, or cut off the Splinters, or ſome Piece of the

Bone, which ought never to be done, unleſs we are very well aſſured that they prick the *Dura Mater.*

There are many who think they have ſped well, if at each *Dreſſing* they can but extract ſome little bit of broken Bone, which they carefully preſerve to ſhew to all that come, thinking thereby to gain Credit, and to raiſe their *Reputation* by that which ought to be condemned, and often coſts the wounded Perſon his Life.

A very *famous Officer*, not long ago, experienced the fatal Effects of this *cruel Method*; for having had his Scull broken by a Bullet, whereby he was in a manner trepanned, without hurting the *Brain*, or its *Membranes*, or occaſioning any dangerous Symptom; ſome time was unadviſedly ſpent twice a Day, in looſening and pulling away forcibly little *Portions* of the *Bone* (which *Nature* would eaſily have ſeparated) as ſuppoſing that afterwards, which yet was impoſſible, they might chance to prick the *Dura Mater:* By this Method the *Dura Mater* and the *Brain* were altered, and viſibly *mortified*; ſo that he died on the eleventh Day of his Wound. I was indeed called to give my Advice, after his Condition was deſperate, but all I could do in this Caſe, was to give him Notice of his approaching *Death.*

Many *Surgeons*, thro' a vain *Oſtentation*, ſpend all their *Life*, and exhauſt their *Diligence*, in unravelling all the Secrets of the new Diſcoveries

veries in Phyſick, and in qualifying themſelves to diſcourſe accurately thereon, contemning all the Opinions of the Ancients; while in the mean time, they remain in an entire Ignorance of the Practice, notwithſtanding all their *Science*. If theſe Men were as deſirous to be knowing, as ambitious to appear ſo, they would take another Courſe: And not, confining themſelves only to *Reaſoning*, and to ſhew their Wit in *Conſultations*, neglect to improve a *good Method*.

It is not enough to underſtand the *Nature* and *Difference* of *Wounds*, and to know the Cauſe of *Accidents* that befall them, nor yet quaintly to explain them, by *Reaſons* purely *Speculative* and *Chimerical:* We muſt join to the *Theory*, which is indeed very uſeful and neceſſary, a *Method* of *Curing* and *Rooting* out Diſtempers, which is to be looked on as the moſt neceſſary Part of *Surgery:* But it is rare for thoſe who addict themſelves wholly to *Reaſoning*, to have ſuch Regard for Practice, as to acquire it to Perfection, and to abandon their own Maxims to follow others that are contrary to them. Wherefore, I have addreſſed this little Diſcouſe to young Surgeons, who may poſſibly reap ſome Advantage from it, as being not uncapable of the good Impreſſions one deſires to make upon them.

I am not deſirous that the Newneſs of this *Method*, ſhould either engage them to follow it, or oblige them to reject it; but only wiſh

that they may put it to a *Trial*, in order to make a true Judgment: For every reaſonable Man ought wiſely to inform himſelf of the Truth of things, and to examine their Conſequences, before he poſitively gives his Judgment. Nothing is more eaſy for one, than to paſs a *Verdict*; and nothing more difficult than to *judge aright*.

I am convinced by Experience, that it is dangerous to credit the Teſtimony of others. The wrong Judgment made on a *Wound* that one of our moſt famous Generals received, *October* the fourth 1693, being the Day of the Fight of *Marſeilles*, and my Eaſineſs to rely on the Fidelity of another, and on the Report made to me the Day after the firſt Dreſſing thereof, had almoſt coſt him his *Life*. The *Wound* was deep, and made by a large *Bullet*, and was dreſt at firſt as if it had been only a ſimple one, with a great Quantity of Lint, whereof a great Part was loſt and fixed in the Depth of the Wound: However, it happened very fortunately, that it was driven out by the *Matter*; but it left behind it, in the Place where it was hid, a conſiderable Mortification, which gave Occaſion to make great and deep *Inciſions*, whereby a *Fracture* was diſcovered. Prudence hinders me to declare more at length the Circumſtance that accompanied this Cure, to which M. *Dalibour*, Maſter-Surgeon ſworn at *Paris*, and Surgeon-Major of the *Horſe of the Houſhold*, an able and experienced Man, was

was called to give his Advice. In a word, after many Accidents, all was brought to a happy Concluſion.

It is therefore abſolutely neceſſary for a *Surgeon*, who is careful of his Reputation, to ſearch the Wounds himſelf which were not dreſt by him at firſt, in order to diſcover their Nature, and know their Extent. This was not the only Perſon who, in the Day of that Fight, experienced the Inconveniency of being dreſt at firſt in a hurry. I have, for good Reaſons, not mentioned ſeveral other Caſes not much differing from the former, that occurred on the ſame Occaſion, upon which there were many dreſſed in that Quarter, that was aſſigned to the Body of Reſerve, belonging to our Book.

In this Book, and particularly in the ſecond Part thereof, may be ſeen after what manner I have brought to a perfect Cure a great Number *of Wounds*, of all *Kinds* and *Qualities*, with much *Eaſe*, ſmall *Charge*, and with ſimple *Remedies*, which are no leſs uſeful to the *Rich*, than convenient for the *Poor*.

The great Charges ordinarily laid out upon the Cure of Wounds ſometimes involve the Patient, after the Cure is perfected, in Evils no leſs troubleſome than the former. The *Wounds* are filled and cloſed up, but the *Pockets* are opened and drained. That Perſon, of whom I ſpoke in the 25th *Chapter* of the Second Part, before he came under my Care,

had a Bill of *Three hundred and ſeventy ſix Livres* brought him by the Apothecary, for Medicines furniſhed by him; when yet, after all that Expence, there was no appearance of a Cure.

The Credit of a *Surgeon* does not conſiſt in emptying the *Shops* to cure his *Patients*: On the contrary, we ought rather Chriſtian-like to be ſaving of the Money of thoſe, who put their very *Perſon* and *Life* in our Hands: And if they chance to prove ſo ungrateful, as to deny us what we have deſerved, after ſuch a good Deed, we may expect our Reward from Heaven. We ought not to be bribed by the Conſideration of a mean Intereſt, to abandon the Fidelity wherewith we ought to endeavour the ſpeedy Cure of our Patients. If a Patient is deſtroyed by unexpected Accidents, when the Cure is delayed on a mercenary Account, the Surgeon, under whoſe Care he was, becomes guilty of his Death.

I have ſeen many Perſons of Note, whom I won't name, who paſſing through *Briançon*, eight or nine Months after the Battle of *Marſeilles*, wherein they had been wounded, were either Fiſtulous, or very far from being compleatly Cured.

Nevertheleſs, that I may not raſhly blame thoſe who had theſe Perſons under their Care, I am willing to believe, that the Tenderneſs of their *Conſtitution*, their ill *Temperament*, or the unwholſome *Air*, which very much

much conduces to continue the Wounds, occaſioned the tediouſneſs of theſe Cures, which in other Perſons and Circumſtances had been perfectly finiſhed in two or three Months at moſt: But I can't reſtrain my ſelf from ſaying, that the *Tents*, as well as the frequent and painful Way of Dreſſing, ſo much in Uſe, are ſufficient to cauſe all theſe *Accidents*, and to hinder the Cure of Wounds. And this is what makes *Surgeons* hated, and *Surgery* chargeable.

In this little Work, I have done what I could to ſhew, not ſo much by Reaſoning, as by *Examples* and *Authority*, that *Nature* has the greateſt hand in curing Wounds, or to ſpeak more truly, that ſhe is the principal Worker therein. But I leave it to the performance of more delicate Pens to celebrate her Praiſes, and to publiſh her Excellencies, contenting my ſelf to admire her Wonders, which are no leſs unaccountable than they are ſurprizing.

The Year 1686. afforded me an Occaſion wherein it appeared, that *Nature* ever acts for the Preſervation of the moſt noble and the moſt perfect of her Works. A Soldier of the Fort of *Mirabout*, which parts the Valleys of *Lucerne* from *Queras*, having robbed his Captain, was purſued; and finding no other Way to eſcape, he threw himſelf down from the top of the Walls upon the Rocks, where falling on his Feet, they were not only put out

of Joynt, but each of them were fractured with a Wound: He was taken, and brought to the Fort, where there was no *Surgeon*, by reaſon of the ſmallneſs of the *Garriſon*.

He lay four Months on Straw, without any relief but Bread and Water; during which time his Feet were gangrened, and ſoon afterward entirely mortified.

But, what is extreamly ſurprizing, round the lower Part of both the *Legs*, a little above the *Ancle*, *Nature* herſelf formed a certain *Wreath* or *Roll*, which ſtopt the Progreſs of the *Mortification*, ſo that what was beyond this, was abandoned to the fury of the *Sphacelus*, while whatever was above theſe *Rolls* was free from blemiſh.

He cut off the *Right Foot* himſelf by the Joynt, with a little Pocket-knife, without either *Pain* or *Bleeding*; and becauſe the Putrefaction occaſioned an intolerable Smell over all the Fort, by reaſon of the exceſſive Heat, he was ſent to our Hoſpital at *Lucerne*.

By the Way he loſt a good part of the other Foot, which came away of its own accord; and notwithſtanding the contagious Smell, which as Carrion he diſperſed in all the Places where he paſſed, and alſo the extreme Heat of the Seaſon, the Mortification did not paſs over the Bounds that *Nature* had given it; only theſe Wreaths that we mentioned above were conſiderably encreaſed in Bulk by the way.

After

After he had recovered his Strength, by the Aſſiſtance of good *Cordials*, ſome *Wine* and Victuals, I cut off that appeared to be entirely mortified, not ſparing the higheſt Places of the *Rolls*, which caſt an inſupportable Smell: I let him reſt till the Morrow, and then cut off one Leg, and the other the Day after; for the Ends of the *Tibia* and *Fibula* were altogether rotten and uncovered. Finally, no other Accident happened during the reſt of the Cure, which was compleated not long after.

This wonderful Example is ſufficient to evince, that the want of *Art* is oftentimes ſupplied by *Nature*. This may further appear alſo by what follows, it being a very ſtrange thing that happened at *Pignerol*. M. *de la Place*, Captain in the Regiment of *Barrois*, was wounded with a Bullet at the Battle of *Marſeilles*, that entred at the middle and hinder part of the *Fore-arm*, and came out at the lower and fore part of the ſame, breaking the *Cubitus* in its Paſſage. He was dreſſed by M. *Malinus*, a Surgeon-Major belonging to the Army in *Italy*, and Maſter-Surgeon of *Lyons*, very skilful in his Employment.

This Wound was attended with ſome troubleſome Accidents: For together with a continual *Fever*, an *Abſceſs* was formed by a collection of Matter, which was extended over all the *Arm* and *Fore-arm*: But as they were preparing to make an Inciſion, the wounded Perſon

Perſon was ſeized with a great *Looſeneſs*, which reſtored the *Arm* and *Fore-arm* to their natural State. This unexpected *Accident* being followed by ſo ſurprizing an Effect, obliged his Surgeon to take a view of that which the *Patient* had voided, and it was found to be the *Matter* of the *Abſceſs*, without any thing elſe, ſave ſome little Excrement that remained unmixed therewith: Moreover, as new *Matter* gathered, it was voided again by *Stool* in a little time after. In fine, the Wounds being compleatly cured, the *Looſeneſs* ceaſed, becauſe that was removed which occaſioned it.

Perhaps the *Matter* was taken up by the *Veins*, and by means of Circulation carried to the *Meſaraicks*, and thence emptied into the *Guts*: This I only propoſe as an uncertain *Conjecture*, all other Ways being to me unknown. I willingly leave it to the *Learned*, to be explained according to their different *Apprehenſions*. But that which induces me to think this *Way* has ſome Appearance of Truth, is, that this *Surgeon* ſolemnly proteſted to me, that at the beginning of the ſame Campaign he had under his Care a *Captain* who had a Wound in the *Thorax*, that pierced into the Subſtance of the *Lungs*, and was accompanied with all the *Accidents* common to ſuch kind of *Wounds*; all which, nevertheleſs, were removed by opening a *Vein* in the *Arm*, which was done with an intention to let *Blood*, inſtead of which nothing came out by the *Orifice* made in the *Vein* but

but *real Matter*, ſent from the *Breaſt*. Many Perſons of Credit, who were eye-witneſſes, aſſured me of the Truth of this *Prodigy*.

Fabricius Hildanus, Chap. 3. *Obſ.* 39. relates, that an *inveterate Ulcer* in the *Leg*, with a *Fiſtula*, that was raſhly cured, was followed by a *Pleuriſy*, in which the *Patient* voided at the Mouth a *Matter* like to that which uſed to come from the *Ulcer* of the *Leg*.

It were an eaſy matter to adduce an infinite Number of Examples almoſt alike, wherein *Nature* appears to have ſurpaſſed herſelf, either in preſerving Parts afflicted, in eaſing thoſe over-charged with Humours, or, in fine, in uniting ſuch as are divided.

In the Year 1686. one *Lanſavechi*, Quarter-Maſter of the Dragoons of *Verue*, in the War againſt the *Vaudois*, was wounded by a large *Bullet*, in the upper and ſide-part of the *Hypogaſtrium*, and by all the Accidents it appeared that the *Colon* was torn by the Bullet: There came out of the *Wound*, for more than the ſpace of two Months, an *excrementitious Matter*, during which time he ſuffered grievous Pains: At length *Nature*, without any Aſſiſtance, cloſed up the *Wound* of the *Gut*, tho' the Bullet was loſt; and he left *Lucerne* at the breaking up of the Hoſpital, which was three Months after his receiving the Wound.

Hildanus has a like Obſervation of a certain Man who had one of the great Guts opened in the Operation of the *Bubonocele*, which

which cloſed up of its own accord. In fine, as we are oftentimes ſurprized by things that could not be helped, but either from the *Bounty* or *Caprice* of *Nature*, ſo alſo extraordinary things fall out in *Wounds* by an effect of chance, as well by reaſon of the *poſture* Men are in when they receive their *Wounds*, as becauſe of the *Things* which wounded them.

In the ſame Year 1686, one wounded with a Shot was brought to the Hoſpital at *Lucerne:* The *Bullet* entered on the lower and middle Part of the *Os Occipitis*, and grazing upon the *Temple Bone*, came out under the *Right Ear*, carrying away Part thereof. Tho' it plainly enough appeared, that the *Bullet* had touched the *Scull*, yet the Wound was dreſſed as a ſimple one, becauſe no Accident appeared; and it was left to the Care of the Servants. Thus three Days paſt, during which the Patient was troubled with a Reſtleſneſs, complaining only that he could not put himſelf in an eaſy Poſture, which was not much minded: Nevertheleſs, he died on the 4th Day of his Wound, with all the Symptoms that uſually attend ſleepy Diſtempers.

The unexpected Death of this Man obliged me to open his Scull. I found him wounded with a ſmall *Wedge* of *Lead*, which ſtriking againſt the middle Ridge, on the lower Part of the *Os Occipitis*, at the time when his Head was bowed down, was cut in two by the ſharp edge of the Bone; one Part had ſlipt on the *Temple Bone*,

bone, as was ſaid, and the other entered the cavity of the *Scull* on the ſame ſide, remaining fixed between it and the *Membranes*, which were cut and preſſed thereby. His Fellow-Soldier, in the ſame Day's Action, had two Wounds by one Shot; the firſt a little below the *Yoke-bone* on the left ſide, and the other in the middle Part of the right *Hypochondre*; yet he was compleatly cured in twelve Days by a moderate Suppuration, and no Accidents.

I have ſeen many Wounds no leſs ſtrange than theſe; but, in order to make a right Judgment in ſuch like Caſes, the nature and figure of the wounded Part, the Poſture of the Perſon when he received the Wound, and the figure of that which made it, muſt all be very carefully examined beforehand. Now, the ready apprehending all theſe Circumſtances, with many others neceſſary to be known, in order to ſucceſs, can't be attained by *Surgeons* without great Study, Practice and Diligence.

The Aſcent whereby we mount the *Temple* of *Æſculapius* is no leſs difficult and ſteep than that by which we riſe to Mount *Parnaſſus*. 'Tis almoſt impoſſible to get up without making ſome falſe Steps. However, 'tis but reaſonable to think, that thoſe who were employed in *Hoſpitals* and *Armies* during the late War, by the innumerable different Caſes which it afforded, have diſcovered Things very ſurpriſing, and no leſs uſeful in Practice, and have often ſeen the *ſtrange Ways* Nature takes to throw off what offends, by healthful *Evacuations*. Such

Such as impart to the Publick their Obſervations and Experiences, which are the Fruits of their Diligence and Care, have deſerved well of Mankind. Many *Surgeons* there are, who have not the Advantage of Occaſions to accompliſh themſelves in this ſort; and of thoſe that have, few are ſo charitable as to publiſh what they've ſeen and remarked *extraordinary*.

When a Man does not communicate his *Attainments* (by Writing) to the Publick, let his *Endowments* and *Knowledge* be never ſo great, they are for the moſt part, if not altogether, buried with him. The *Good* a Man can do, laſts but for a time; but the *excellent Advice* he leaves (in Writing) to Poſterity is uſeful for ever. We had ſtill been in Ignorance, had not the Writings of the Ancients come down to our Hands.

Wherefore I thought myſelf bound in *Conſcience* (tho' at the Hazard of being condemned by the *Envious*) to impart to the World my *Experiences*, that (if poſſible) I might procure to *poor wounded Perſons* a more ſpeedy Aſſiſtance than can be afforded by the *common Method*. If I ſhall have the Happineſs to ſucceed in my Deſign, I ſhall think myſelf ſufficiently recompenſed for all my Toil, and will praiſe the *Almighty Father of Lights*, who by *ſmall Means* often brings *mighty Things* to paſs.

The End of the Hoſpital-Surgeon.

The Manner of Curing all

FRACTURES

AND

DISLOCATIONS

Incident to

Human Bodies,

By the Means of

BANDAGES.

Compiled by M. LAWRENCE VERDUC,
Sworn Maſter-Surgeon at *Paris*.

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The AUTHOR's Preface.

THE Work I here undertake is of no ſmall Conſequence, as being the Province of that great Phyſician of Greece, Hippocrates. *'Twas he who firſt taught us to wind up and roll the Parts of* Human Body, *and has left it on publick Record, that the* Bandage *is the moſt neceſſary and moſt certain Remedy that* Surgery *can boaſt of. Now this engaged me to compile and publiſh a* Treatiſe upon Bandages, *to the end that thoſe of our Profeſſion may with Conſtancy and Diligence purſue the Method of preſerving the Union of the Parts in the Diviſion of the* Bones; *of procuring the Union of the ſoft Parts by* uniting Bandages, *and of healing Ulcers by* expulſive Bandages.

This is the whole of my Deſign: And I can juſtly ſay, with all the Sincerity of my Heart, that I have laid aſide all manner of Paſſion; ſo that I hope I am conducted by the true Light, that flowed from that great Genius of Greece, *in the Explication I have given at the beginning of the general Doctrine of* Bandages: *After which I treat of* Fractures *and* Diſlocations, *and ſhew both the Signs to diſtinguiſh, and the Means to redreſs them; with a particular Deſcription of the* Bandage *that's proper for each of theſe Diſorders; of the length and breadth of every* Roller, *and of the Figure of the* Plaiſters, Compreſſes *and* Paſte-boards.

This I have purſued with all the Order and Method I could poſſibly think of; it remains only for me to wiſh, that all may tend to God's Glory.

The

The Way and Manner of Curing all Fractures and Diſlocations incident to Human Bodies, by the Means of Bandages.

CHAP. I.

The Definition of a Swathe-Band *or* Fillet, *and its Differences.*

BEING long importuned by my Scholars and Auditors to publiſh a *Treatiſe of Bandages*, I now comply with their Requeſt, and ſhall here endeavour to be as plain and intelligible as poſſibly I can, that any one may reap Benefit from this Performance. We may juſtly join with *Hippocrates*, in aſſerting, that Bandages are the moſt neceſſary and certain Remedies within the whole Verge of Surgery, this Aſſertion being backed by repeated *Experience*; for how many crowned Heads have been reſcued from the Jaws of Death, both in Peace and War, by the means of Bandages? Who can pretend to undertake any Operation in dividing the Parts, whether ſolid or fleſhy, to ſtop the *Blood* and

and ſave the *Spirits*, without having recourſe to theſe grand Remedies, which are always firſt uſed?

I could eaſily enlarge upon the Advantages and Prerogatives of this ſort of Remedies, but I chuſe to wave 'em, and ſhall content myſelf with obſerving, that *Chirurgical Bandages* fall under a twofold Conſideration; and, that thoſe who would underſtand and uſe 'em right, ought to know that there are two ſorts of *Bandages*, namely, the *Common* and the *Proper*; the *Common* are ſuch as may be applied conveniently to ſeveral Parts of the Body, and for ſeveral Diſorders; and that the *Proper* are only applicable to particular Parts, and calculated for particular Diſorders.

But before we launch further into the Diviſion of Bandages, 'twill be proper to explain the difference between a *Band* or *Fillet*, and a *Bandage*. All *Bandages* may juſtly be called *Bands*, but all *Bands* are not *Bandages*: For, as *Hippocrates* ſays, a *Bandage* muſt be conſidered two ways, *viz.* when 'tis making, and when 'tis actually made. That is to ſay, a *Band* or *Swathe* changes its Name as ſoon as it is applied to the Part, or when they begin to wrap it round, for then it becomes a *Bandage*, which Title it never bears, but when there's Application in the caſe.

Now to ſet this in a clear Light, there are four general Things to be explained, which a Surgeon ought neceſſarily to know. Firſt,

what a Swathe-Bandage is. Secondly, from whence the Species and Differences of Bands are taken. Thirdly, what are the Parts of a Band. And fourthly, what Conditions are requiſite in a Band.

A Band is defined to be a long and broad Ligature, for ſurrounding, binding, and containing the Parts of the human Body, and keeping them in a ſound State. The three firſt Words of the Definition relate to a Band in general, and the remaining Words relate to a Bandage. The three firſt Words give us to know, that a Band has Parts, namely, the Body, and the Extremities or Ends. By the Body we underſtand the middle and thickneſs of it; by the Extremities, we mean both the Ends that run out length ways, and thoſe which run a-croſs in a lateral Way.

To ſet the 2d Part of the Definition in a clear Light, we muſt know in the firſt place, that there are two ſorts of Bandages, one ſort are Remedies of themſelves, and the other ſerves only to keep Medicines upon the Part. If this were duly minded, there would not be ſo many Errors committed, as we daily meet with, for want of due Reflection upon the proper Uſe of Bandages. The Words *ſurrounding* and *binding*, relate either to that ſort of Bandages that are Remedies of themſelves, and the Word *containing* relates properly to the Bandages that have no other uſe but that of keeping on the Medicines, and called *contentive Bandages*.

Ha-

Having thus explained the Definition of a *Swathe-band*, we proceed to its Differences.

Galen takes the Differences of Bands from five Things, namely, their Matter, Figure, Breadth, Length and Structure.

The difference that's most necessary in the way of Practice, is that taken from the Matter or Substance, some being made of Linen, others of Woollen, or of other sorts of Stuff. For the most part, the Ancients made use of Linen-Rags or worn Linen for this Service, especially in the case of Fractures, in which the Part must be tyed and bound hard; and in our modern Practice, we use it on all Occasions, upon the Consideration that with it we can bind hard, or slacken as we will, that 'tis to be come at more readily than any other thing, that it washes more easily, and that it conveys the Vertue of the Liquors to the affected Parts, with greater Facility than any other Matter.

The 2d difference is taken from the Figure, for some are equally roll'd and gather'd, such as those made use of in Fractures and Dislocations; others are slit and cut into several Heads, such as those for the Head, the Ears, and the Chin; and others again are made of several Rollers of different Figures, gather'd and stitched together, such as those which bear up the Breasts and the Testicles.

The 3d difference arises from the length; for some are long, others short, and others again

again of a middling Length. We can't but agree to what *Galen* ſays, That the Length of all Bands can't be tied up to one general Rule, in regard they muſt needs be diverſified, according to the different Conſtitutions of Bodies, and the Length of the Part affected. Beſides, there's a Neceſſity of having longer Bandages when the Diſorder ſpreads, and deeply affects the Parts, and where the Bandage can't be firm and ſure without many Rounds and Convolutions of the Roller; whereas upon other Occaſions ſhorter Ligatures will do.

As for the Breadth, which gives the fourth Difference, ſome Swath-bands are very broad, ſuch as thoſe for the Head, the Breaſt, and the Belly; others are very narrow, ſuch as thoſe for the Noſe, the Lips, and the Fingers; and others again are of a middling Breadth, for Inſtance, thoſe of the Arms and the Legs.

Galen ſays, that we can't confine the Breadth to one general Standard, no more than the Length; and this Difference or Alteration of Breadth, proceeds only from the Diverſity of Age; for the gradual Growth of a Child from his Infancy to his Arrival at a full Stature, complete in all its Dimenſions, of neceſſity varies the Breadth of Swathes: And to my Mind there can be no general Rule given upon this Head, but what runs upon theſe three Points, namely, a Child, or a Youth growing up that requires the gradual Inlarging of the Breadth; a Man of a large Size in all his

Dimenſions, both as to Bulk and Heighth, who requires very broad Bands or Rollers; and thoſe of a middling Breadth, that is, neither too broad nor too narrow.

This is confirmed by *Hippocrates*, who tells us, That in order to make a right Uſe of Swath-bands, we ought to conſider the Breadth and Thickneſs of the Parts. *Guidon* alledges, that Bands or Fillets for the Shoulder, ought to be ſix Fingers broad, thoſe for the Thigh five, for the Leg four, for the Arm three, and for the Finger one. I hope I ſhall here lay down juſt Rules for the Length and Breadth of Bands calculated for each Part; but you are to underſtand, that when I fix a Standard for the Shoulders, the Thighs, the Legs, the Arms, and the Fingers, 'tis only calculated for thoſe who are of a mature Age, and an ordinary Size; the Length and Breadth required by others, being eaſily adjuſted in Proportion.

Galen takes his fifth Difference of Bands or Fillets from the Structure, for ſome are woven on purpoſe in the Form of a Ribbon, of Thread, Worſted, and the like; and others are made of linen Rags; and 'tis this laſt Sort that we uſe now-a-days, becauſe they are of more uſe than the former.

A Fillet conſiſts of two Parts, *viz.* the Body and the Extremities or Tails, which I explained before, ſhewing, that the firſt is the middle and thick Part of the Fillet, and the Tails or Ends are four, *viz.* two *longitudinal*, and two *lateral*.

Hippo-

Hippocrates informs us very juſtly, that a Band or Fillet ought to have four Conditions or Qualities. The firſt conſiſts in the Choice of the Matter or Subſtance of which they are made; the Linen, for Inſtance, muſt neither be too new nor too much worn; if it be over-worn, it rends and tears upon the leaſt Occaſion, and does not bind the Part faſt enough; if it be too freſh and new, 'tis too ſtiff to be pliant, and binds too hard, and cauſes Pain. So that our Bands ought to be made of ſuch Linen as is of a middling Force and Freſhneſs. *Hippocrates* enjoins farther, that the Bands be ſmooth, plain, ſoft, and light; by Smoothneſs and Plainneſs he excludes Unevenneſs, or the leaſt puckering and riſing unequally; by requiring Softneſs, he inſinuates, that they muſt not preſs, or wring, or wound the Part; a Fineneſs is requiſite to facilitate the Paſſage of the Liquors through its Subſtance; and the Inconveniency of over-loading the affected Part, makes Lightneſs a neceſſary Quality,

The ſecond Quality he inſiſts upon, is their Cleanneſs, and their being clear of all Naſtineſs and Filth. *Hippocrates* does not mean that the Fillets ſhould be applied dry, for he orders them to be dipt in a proper Liquor in order to mitigate the Pain, and prevent other Accidents, which is chiefly to be underſtood of grievous Diſorders, ſuch as dangerous Wounds, Fractures, and Diſlocations, and not of a ſlight and ſmall Indiſpoſition.

The third Quality demanded by our Venerable Author, conſiſts in the right cutting of them; for, as *Galen* ſays well, they ought to be cut down along with the Thread, and not a-croſs; for the Linen that's cut croſs-ways is too pliant and ſlack, and preſſes down only in the middle of its Body, and not in the lateral Extremeties. *Guillemai*, in his Surgery, adviſes to cut the Linen croſs-ways that's deſigned for the Elbow, the Ham, or the Shoulder, but that relates only to Compreſſes, and not to Fillets.

The fourth and laſt Quality enjoined by *Hippocrates*, is their being free of Liſt or Selvage of Knots, of Hems, and of all manner of unevenneſs; for whenever ſuch things take place, they lock up and wring the Part ſo, as to cauſe a Pain that draws down a Flux of Humours.

Having thus explained the Difference of a Band, with its Diviſions, Parts and Qualities, it remains now to account for the Nature of Bandages and their Differences.

CHAP. II.

Of the Nature of Bandages, and their Differences.

A Bandage may juſtly be called the rolling or rounding of Bands round an affected Part, together with the neighbouring and ad-

jacent

jacent Parts. A particular Deduction of the different Sentiments of Authors, relating to the Differences of Bandages, would rather perplex than inſtruct the Reader; for which Reaſon, I chooſe to go a little higher, and ſubſcribe to the Sentiments of *Hippocrates*, who derives the Differences of Bandages from ſix things. Firſt, The time of the Operation: Secondly, The Simplicity or compound Structure of the Bandage: Thirdly, The manner in which the Parts are bound up: Fourthly, The Place where the Bandage ought to commence and terminate: Fifthly, The Order obſerved in applying the Fillets: Sixthly and laſtly, The common or proper Nature of the Bandages.

To reſume all theſe Differences, and explain them in order, we muſt obſerve with *Hippocrates*, that with regard to the firſt Difference drawn from the time of the Operation, we muſt conſider a Bandage while 'tis yet a making, by way of Diſtinction from one that is already made. For the former there are *three Conditions* required, which are couched under theſe *three* Words, *Cito*, *Tute*, *Jucunde*, *i. e.* ſpeedily, ſafely, and dexterouſly. The firſt *Condition* implies, that the Work ought to be done with Expedition, that the Bandage and its Appurtenances ought to be in a Readineſs, and that a Surgeon ought to make all the neceſſary *Proviſions* before he undertakes an Operation of Conſequence,

whether it be to ſtop the *Blood* in an *Aneuriſma*, or in the Caſe of an Extirpation. In ſhort, the Meaning is this, that in the time of the Operation, or after 'tis over, 'tis not a ſeaſonable time to be then looking for Remedies, or preparing the Dreſſings, the Patient being thereby expoſed to the Danger of his Life. The ſecond Word, *ſafely*, imports, that in all Operations we muſt take Care not to run the Riſque of any thing that's avoidable; and the third, viz. *dexterouſly* or *handſomely*, implies, that when a Bandage is well performed, the Surgeon gains Glory, and preſerves his Reputation with the Patient and the By-ſtanders. This is confirmed by *Galen*, in his excellent Precept relating to the Ornament and Perfection of a Bandage; in which he ſays, That a good Surgeon gains the Eſteem of the People, and makes the Patient obedient to his Precepts.

The ſecond Difference of Bandages, taken from their Simplicity or Compoſition, is grounded upon the Doctrine of *Hippocrates*, who ſays, There are two Sorts of Bandages, *viz.* one ſingle, and another compound: The former is called *ſimple*, or *ſingle*, for three Reaſons: Firſt, becauſe 'tis made only of one Band or Fillet; Secondly, the Fillet with which the Bandage is made, is a ſingle Fillet, without any thing ſtitched or tacked to it; and Thirdly, its Rounds and Turns are all ſimple.

A com-

A compound Bandage is the Reverſe of the Simple; for oftentimes 'tis made with ſeveral Fillets cut and ſlit into Ends, or has other Fillets tacked to the principal one, or is performed by ſeveral Turns and Rounds, different the one from the other.

A ſimple Bandage is divided into two Sorts, *viz.* the equal and unequal. The Equal can only be of one Make or Faſhion, that is, round and circular, encompaſſing the Part as a Hoop does a Cask, without turning or ſhifting to one Side or t'other. As for the ſimple unequal Bandages, there are ſeveral Sorts of them, the Number of which is not agreed upon by Authors. *Galen* makes but two ſorts; to which *Gourmelain* adds a third, but in common Practice we make four, *viz.* the *Deloire*, the *Mouſſe*, the *Renverſed*, and the *Creeping*. However, to avoid the perplexing and confounding of the young Students of Surgery, I chooſe to make but three, by throwing out the *Mouſſe*, for theſe ambiguous Words, ſo often quoted in common Practice, afford no manner of Explication of the thing itſelf, and ſerve only to embroil and perplex the Mind, as I have found by long Uſe and Experience in the Demonſtration of Bandages. Beſides, the *Doloire* and the *Mouſſe* differ only in leſs and more, and conſequently do not merit a Diſtinction, for the former is only a ſimple unequal Bandage, carried upwards or downwards, ſo as to leave the fourth Part of the Fil-

let uncovered, and the latter is the ſame, only ſo managed as to leave but a third Part uncovered.

The ſecond ſimple unequal Bandage, is the *Renverſed*, which we uſe for the Extremities or Limbs of the Body. It ſerves to render the Parts equal; as in the Leg, for Inſtance, by carrying your Bandage from below upwards, and making Reflexions or Plaits under the *Muſculi Gemelli*, which make the Calf of the Leg, you make the Leg equal and even. The third ſimple unequal Bandage, is the *Creeping*, ſo called becauſe it turns round the Part in a ſerpentine way, leaving a Space between every two Rounds. It ſerves only to contain and keep on Medicines, without locking up the Part, in Inflammations. For Inſtance; *Galen* takes the Difference of *compound Bandages* from three things, *viz.* the Part affected; ſecondly, ſome Accident or other; and thirdly, the Similitude of the Part. Some Bandages derive their Names from the Parts to which they are applied, being called, the Eye, the Noſe, the Groin, the Breaſt, *&c.* Others take their Names from the Reſemblance they bear of ſome particular Figure; and ſuch are the *Lozenge*, the *Creeping*, the *Ditch*, the *Lid*, the *Crab*, the *Sparhawk*, the *Tortoiſe*, &c.

The third Difference of Bandages riſes from the manner in which the Part is bound; for, in regard the Parts of the Body differ very much in their Figure, and are liable to Diſorders of different Natures, we can't pretend to tie

tie and bind up all the Parts after one manner. To give an example: When we apply a Bandage to a compleat Fracture of the Leg, we begin with a Fillet rolled up to one Head or Ball; in a Fracture of the *Clavicula* or Chanel-bone, we begin with a Roller of two Heads; in applying Bandages to the Eyes, or making a Ligature for bleeding in the Forehead, and ſeveral other Caſes, we begin with the end of the Fillet.

For a Uniting Bandage, we begin with a Fillet rolled up to two Heads; and in Extirpations we begin the Bandage with a Roller of one and of two Heads, as well as in Dreſſings for the Breaſts, for which we uſe the *Pocket* or *Heliodorus*'s Band. For the Head we uſe the Bandage called the *Cancer*, which is cut into ſeveral Heads, ſo that the Body of the Linen Covers the whole Head.

The fourth Difference is taken from the Place where the Bandage begins and ends.

That Difference is the moſt neceſſary, and of greateſt importance in the Way of Practice, that is taken from the Place where we begin to lay down the firſt end of the Band, and that where we terminate and fix the other end.

Now, to adjuſt this Matter, we muſt know, that a Bandage begins at one of theſe three Places, *viz.* either the Part affected, or elſe the adjacent Part, or elſe the Part that's oppoſite to it. When we make the firſt Rounds upon the Part affected, we do it upon three Conſi-

derations; firſt, when we have a mind to prevent a Defluxion upon the Part, by repulſing the Humours to the ſound Parts; and accordingly in Fractures we always begin our Bandage upon the fractured Part. This we find recommended to us by *Hippocrates*; and *Galen* teaches us, that if we mean to ſtop a Flux of Blood, we ought to make ſeveral turns and rounds about the affected Part, and finiſh the Bandage toward the upper Parts, that is, towards the Root or Head of the Veſſels, which ought to be practiſed (continues *Galen*) upon all the Parts of the Body, excepting the Membranes of the Brain. In like manner, in dreſſing Contuſions, we ought to begin the Bandage upon the bruiſed Part, with intent to prevent a Stagnation or Flux of Blood, an Inflammation and a Suppuration. This is expreſly enjoined by *Hippocrates*. "Let the affected "Place be where it will, *ſays he*, whether it be "Suffuſion of Blood, a Contuſion, a Rupture, "or a Tumor, provided there is no Inflam- "mation, we ought always to begin our Ban- "dage upon the Part affected, and that in the "middle of it, rolling the Fillet hard about "it, and ſo continuing till 'tis pretty tight, after "which the extremity of the Fillet ought to be "carried upward, and there made faſt.

The ſecond Intention that moves us to begin the Bandage upon the Part affected, is to disjoin and ſeparate what is apt to unite and glew together, as in Burnings upon the Chin, Fingers, Feet, &c. The

The third Deſign is to keep the Medicines upon the Part; in which Caſe we call the Bandage a *contentive* Bandage.

When we begin the Bandage upon the neighbouring Part, we do it likewiſe for *three Reaſons.*

The firſt is, the Reduction of diſlocated Bones; if the *Condylus* of the *Tibia*, for inſtance, which is articulated with the Thigh-Bone, be diſlocated to the outſide, we muſt lay the firſt Caſt of the Fillet or Band on the inſide, and roll it hard round the outſide, where the Diſlocation happened, and end the Bandage at the Place from which the Bone was diſlocated. Such are the Orders of *Hippocrates.* The ſecond Caſe that requires the Commencement of the Bandage upon the adjacent Part, is that of Ulcers, which demand an expulſive Bandage. If an Ulcer, for inſtance, is ſeated in the Leg, a little above the Ancle, we begin to wind the Roller under the Sole of the *Foot*, and ſo mount upwards by *Doloires*, *i. e.* ſuch Rolls, as leaving the third Part of the Band uncovered, making Reflections or Plaits till we come at the Calf of the Leg, and then carrying it up to the Garter-place, where we make a ſtronger Conſtriction, and ſo finiſh the Bandage. This we call an expulſive Bandage, which ſerves to diſlodge and expel the Humour that ſculks in the *Sinus's* of the Ulcers.

The third Way of binding, is that in which we begin the Bandage on the oppoſite Part,

whether the Wound be on the fore or the hinder Part of the Body. If the Wound is in the middle of the Forehead, for inſtance, running length-ways, we muſt re-unite the Parts with a Roller of two Heads, perforated in the middle, and begin the Bandage by applying the middle of the Roller to the Nape of the Neck; after which we draw the two Balls or Heads, one in each Hand, from behind, forwards, and paſs one of the Balls or rolled Heads through the Slit in the middle of the Roller, ſo as to make the middle of the Slit to fall directly upon the Wound, and ſo continue to make as many Rounds as are needful for re-uniting the divided Parts.

The fifth Difference of Bandages, is taken from the Order obſerved in ſimple Fractures, which requires a compleat Number of Bands, Compreſſes and Paſt-boards. The under Bands, which are called *Hypodeſmides*, from lying under the reſt, are firſt applied; and that in ſuch a manner as to make the firſt under Band lie directly upon the Fracture, and make three turns round it. For example: If the *Tibia* be fractured, and the Bone caſt to the outſide, we muſt begin the firſt Caſt of the Band from the inſide outwards, making three Rounds upon the Fracture. In like manner, if the *Tibia* be fractured ſo as to throw the diſlocated Bone to the inſide, we make the firſt turn from the outſide inwards, and caſt three rounds about the Fracture,

ture, and ſo riſe with *Doloiers* and renverſed or reflected Rounds, and terminate at the Garter. This Band ought to be three large Fingers broad, or more, in proportion to the thickneſs of the Leg, and three Ells long. The ſecond under Band ought to be three Ells and a half long, and as broad as the firſt. With this we make two turns round the Fracture, caſting them the ſame Way as with the firſt, and then run it downwards under the Sole of the *Foot*, endeavouring not to cover the Ancles, after which we carry it up again with fewer and ſlacker turns than thoſe of the firſt.

Now this ſecond Band differs from the firſt in three Particulars. 1. The Length, becauſe it goes a greater Way. 2. Ells turns round the Fracture, there being fewer and ſlacker. 3. The Diſtance or Interval left between its Rounds, which is larger than in the firſt, that it may reach up to the Garter, where the firſt ended, as *Hippocrates* informs.

Hippocrates and *Galen*, whoſe Sentiments I follow in this ſmall Treatiſe, without perplexing my Reader with the Opinions of other Authors, who muſter up a great Number of Bands for Fractures: Theſe two great Maſters, I ſay, inform us, that the Bandage called the *Epideſmis*, or the upper Bandage, is accompliſhed with two other Bands, beſides the two mentioned but now: And here I ſhall content myſelf with ſhewing the Difference between

between the firſt and the ſecond of theſe upper Bands; for when I come to ſpeak of the Fractures of the Limbs, I ſhall omit nothing relating to the longitudinal and tranſverſe Compreſſes, and the other Dreſſings applied after the Application of the four Bands.

The Application of the two under Bands is already accounted for: As for the two upper Bands, or the *Epideſmides*, if we mean to recover the natural Situation of the Muſcles, from the inſide to the outſide, we muſt begin on the outſide to roll the firſt of them upon the fractured Part, making only one round, and then turn upwards, and end with the two *Hypodeſmides*.

The ſecond *Epideſmis*, or upper Band, muſt be applied above, and brought downwards to the Place where the firſt commenced, caſting the turns from the ſame Side with the former.

Theſe two differ from one another in this, that the Rounds of the firſt, which run upwards, are cloſer and more numerous than thoſe of the ſecond.

Hippocrates and *Galen* ſhew, that this upper Bandage ſerves for four Uſes. Firſt, It keeps the fractured Bones tight, and hinders them to disjoin. Secondly, It ſtrengthens the under Bandage, and keeps it firm. Thirdly, It keeps the Compreſſes in their proper Situation. Fourthly, It hinders the Paſt-boards to gall or bear too hard on the Parts. Of Splints uſed in Fractures I ſhall have occaſion to ſpeak hereafter.

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The ſixth and laſt Difference of Bandages, is taken from the Parts to which they are applicable. Purſuant to this Difference we call ſome Bandages *common*, and others *proper*. The *common* are ſuch as may be applied not only to one Part, or for one particular Diſorder, but to ſeveral Parts of the *Body*, and that upon ſeveral different Diſorders. The *proper* Bandages are ſuch as are only ſuitable to certain particular Parts and Diſorders, and are not proper in any other Caſe.

The ſimple common Bandages are either equal or unequal, under or upper Bandages, with Wounds or without, incarnative, or expulſive, or retentive. As for the Bandage called *Rhomboïdes*, I ſhall take but little notice of it, for tho' it be liſted into the Number of common Bandages, it does but little Service, and is not uſed either in Hoſpitals or elſewhere, not to mention that it can't properly be applied to any Part but the Feet; ſo that 'twould be needleſs to ſpend time upon it; however, I ſhall ſhew its Uſe, as well as that of all the other common Bandages in the proper Places. In the mean time I can't but remind my Reader, that ſome Bandages are Remedies of themſelves, and others ſerve only to keep the Medicines upon the Parts. Thoſe which are Remedies of themſelves, are either *uniting*, *dividing*, *expulſive* or *attractive*. The Union Bandages are uſed on ſeveral Occaſions, ſuch as Fractures, longitudinal Wounds, and

the like. The disjoining Bandages are uſed in Burnings of the Fingers, and in Burnings of the Chin, to prevent its ſticking to the *Sternum*. The expulſive Bandage is uſed in Ulcers, to ſqueeze out the Matter retained in the Sinuoſities. The attractive Bandage is of uſe to recall the Spirits to a decayed Part. A Contentive ſerves only to keep the Medicines upon the Part; and this is the only Sort of Bandage that the Neck can conveniently bear, by reaſon of its being employed in the two moſt neceſſary Actions of Life, *viz.* Reſpiration and Deglutition.

Having thus explained the Nature of Bands, with their Differences, Parts and Conditions, together with the Differences and Uſes of Bandages; I come now to treat of the Application of Bandages.

CHAP. III.

Of the Application of Bandages, *both common and proper.*

I Here propoſe to lop off a great many Bandages that are of no Uſe in Practice, ſuch as the *Rhombus*, the *Demi-Rhombus*, the *Tolus* of *Diocles*, the *Scafa*, the *Cancer*, the Bandage with four Heads, or ſix Heads, or eight Heads, the Royal Bandage, the *Boloneſe*, and the Web of *Perigenna*, which are all common Bandages of the whole Head, excepting

excepting *Diocles*'s *Tolus*, the *Demi-Rhombus*, and the *Scafa*, which are proper Bandages. The *Scafa* is proper or peculiar to the Bleeding of the Vein in the Forehead, the *Demi-Rhombus*, and the *Tolus* of *Diocles*, to Wounds about the Ears. In regard I am not to mention theſe hereafter, 'twill be needleſs to ſhew the manner of applying them; and foraſmuch as we have other Bandages that may be applied to the whole Head, and to any of its Parts, I ſhall content myſelf in giving a clear Explication of thoſe that are ſerviceable.

I begin with the great *Kerchief*, which ought always to lead the Van of the common Bandages of the Head. We make it thus: We take a Napkin, and fold it lengthways, in ſuch a manner, that the two lower Ends run two large Fingers Breadth beyond the upper; then we double the Napkin four times, ſo that the Thumbs may be within, and all the Fingers out, and the right Hand hold the four Ends or Heads. This done, the left Hand takes hold of the other ſide of the Napkin thus folded, at the Diſtance of two Fingers Breadth for the Selvage; and a Mark ought to be made there with the Nail of the Thumb of the right Hand; after that, let the right Hand open or turn out the Napkin, the left Hand continuing to keep hold of the Plait or Fold till the Napkin is quite ſpread and unfolded. Then with your two Hands take hold of the Napkin under the broadeſt Selvage, keeping your two Thumbs out,

out, the one oppoſite to the other; then apply the middle of the Napkin to the Head, in ſuch a manner, that the Root of the Nooſe may fall directly between your two Thumbs that hold the Cloth, which muſt be applied to the Root of the Hair, and with the Palm of the right Hand you muſt take care it does not give backwards: with the left Hand give one of the upper Heads to one of the Aſſiſtants, or to the Patient, to hold: This done, place your left Hand where the right one was, and give the other Head to ſomebody to hold on the other ſide. The two Heads being held oppoſite to the Chin, the Surgeon takes hold of the lower Heads by the Extremities, and pulling them equally on either ſide, forms them into the figure of a Gooſe's Foot, which he faſtens with a Pin behind the Pit of the Neck: And to give the *Kercheif* the laſt degree of Perfection, he puts in his Thumb at the upper Part of the Sinuoſity, and then pulls from before backwards up to the top, with Intent to make the Plaits equal that compoſe the Gooſe's Foot.

Now, to know what the Sinuoſity is, we muſt conſider, that the great *Kercheif* is made up of ſix Parts; namely, four Heads, two behind, that fix at the Nape of the Neck; and two before, that faſten under the Chin; and that which hangs down upon the Breaſts, which is no more than the Cloth plaited, is called the *Sinuoſity*. To make up the ſix Parts, this Sinuoſity is double, one on each ſide, of which

which we make the Cap, by turning each of them up in a ſtrait Line near the leſſer *Canthus*, or the outer Corner of the Eye, and making 'em join equally together, or meet one another on the Crown of the Head. Then you are to make the reſt of the Napkin very even, without any Plait. And this is what we call the great *Kercheif* with its Cap.

The *ſecond Kercheif*, properly ſo called, is made of a Handkerchief laid croſs, which folded from the middle, is form'd into four very equal Heads, two before, and two behind; the Cloth is folded again into four doubles, equally in the middle, where a Mark is made; then you take hold of the Handkerchief with both your Hands, keeping all your Fingers on the under, and your two Thumbs ſet one againſt the other on the upper ſide of the Cloth: And thus you apply it to the Head directly, at the Extremity of the middle Part of the Forehead, each Head being pulled on each ſide with one Hand; then you run along with your Thumbs which are ſtill above the Cloth, and the other Fingers under it, gliding them along the Skin to the Nape of the Neck, where each Hand ſhifts its Head, and then the Heads are brought round to the Forehead, where they are made faſt with a Pin, without any Plait; the poſterior Heads lying equally one upon the other, being made faſt with a Pin on the Crown of the Head, and a Plait being likewiſe made on each ſide, which pulls from below upwards,

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in order to make the Linen lie ſmooth and even, that ſo it may not hurt the Patient. So much for the two common Bandages of the Head, that are uſed in Practice. The reſt I wave, as I ſaid before.

The next in order that deſerves our Regard is a Sling with four Heads, which is made of a Piece of Linen half a Yard long, and as broad as the Breadth of ſix or eight large Fingers. The Cloth muſt be folded in the middle of its Length, and about a fourth Part of it cut or ſlit, leaving the reſt entire. The Band is applied to the Crown of the Head, the Nape of the Neck, the Forehead and the Chin. The manner of Application is this: Take hold of the Band with your two Hands near the End of what is cut, and apply it croſs-ways upon the Top of the Head, placing the flat unſlit Part upon the Place affected. By this means the upper Heads will fall downwards, and the lower ones will mount upwards croſſing the upper, the lower being made faſt behind the Ears, and the upper upon the Forehead.

To apply it to the Chin, place the flat entire Part upon the Chin, draw the ſuperior Heads downwards, croſs them at the Nape of the Neck, and make them faſt at the Crown of the Head; at the ſame time make the lower Heads croſs the upper, and run upwards along the Cheeks, to be made faſt upon the Crown of the Head.

The Forehead has a peculiar Sling, not-

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withſtanding that the Sling with four Heads is common to it and the other Parts. Take a ſmall Piece of Linen, and cut it into four Heads or Ends, leaving no more uncut than juſt the breadth of the Foreheads. In this Caſe the Heads croſs one another, juſt as above. Theſe Slings are very proper in hot Countries, where 'tis not proper to load the Head; and they are of uſe in all the Wounds of the Head and Forehead, and in the Abſceſſes of the Chin and Neck.

Beſides the laſt, there are other Bandages peculiar to the Forehead, particularly the *Uniting Bandage*, which is made thus: Take a Fillet two Ells long, and two Fingers broad, make a Slit in the middle of it, apply it to the Nape of the Neck, pulling the Heads or Ends on each Side, and paſſing them thro' the Slit, which ought to be placed in the middle of the Wound, and ſo make two or three circular Rounds about the Forehead. This *Uniting Bandage* of the Forehead is proper for longitudinal Wounds.

There are three Bandages more, peculiar to bleeding in the Forehead, namely, the *Diſcrimen*, the *Royal*, and the *Scafa:* But I ſhall here content my ſelf with ſhewing the Application of the *Diſcrimen*, becauſe 'tis better and more in uſe than the other two.

Before I ſhew the manner of applying this Bandage, 'twill be proper to reflect upon the Way of Bleeding in the Forehead, and all the

Parts of the Head; for upon ſuch Occaſions you muſt make a Ligature upon the Neck, drawing the two Heads of it forwards under the Chin, and giving them to the Patient or ſome Aſſiſtant to hold; and the Ligature muſt be girded as much as the Patient can bear. This done, the Patient muſt ſhake his Head downwards three or four times, in order to raiſe the Spirits and make the Veſſel appear. When you have taken as much Blood as is neceſſary, cover the Orifice with your Thumb, and apply the Compreſs with your left Hand, then take a Fillet of two Fingers breadth, and three Ells long, rolled up to a Head; meaſure from the End of the Fillet the length that reaches from the Forehead to the Nape of the Neck; then take the Part thus meaſured in your right Hand, and apply it to the Compreſs, ſo that 'twill hang down over the Eyes. Thus hold the Fillet fixed upon the Compreſs with the Thumb of the left Hand, and the Ball or Head in the right Hand, which run obliquely upwards under the left *Os Parietale*, after which bring it down to the Nape of the Neck, and ſo under the right Ear, ſo as to cover the Compreſs; then raiſe the firſt end of the Fillet that was left dangling down, and draw it obliquely to the right *Parietale*, that it may make a Round equal to the other. With the right Hand draw out the Ball to 3 or 4 Rounds about the Forehead, upon the Orifice. This Bandage

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is called *Diſcrimen*, *i. e.* Diſtinction or Separation. 'Tis proper for Bleeding in the Forehead, and in the Temple-Artery.

The proper Bandages of the Eye are of two ſorts, one for one Eye only, and the other for both. A Fillet for one Eye ought to be two Ells and a half long, and three ſmall Fingers broad. Before you apply it, you muſt cover the Eye with a round Compreſs of Linen ſteeped in an appropriate Liquor. If you mean to dreſs the left Eye, hold the Roller in your right Hand, apply the End of it to the Nape of the Neck, which you hold with your left Hand, run it behind the Ear, upon the Cheek, and ſo cover the Eye, after which raiſe it obliquely above the Forehead to the upper Part of the right *Os Parietale*, then bring it down the Nape of the Neck, and ſo run it along the firſt Caſt of the Fillet, which by this means becomes double. When you come to the Nape again, raiſe it, and make two circular Convolutions round the Forehead, and at laſt faſten it with a Pin where you will.

A Fillet for both Eyes ought to be three Ells long, and of the ſame breadth with the laſt. This may be applied in a Roller, either with one or two Heads; but a Roller with one Head is moſt commodious, and more eaſily applied. You begin as in the former, by applying the end to the Nape of the Neck with the left Hand, holding the Roller rolled up to one Head in the right Hand, above either the right

right or the left Eye; then bring it about to cover the Eye, running obliquely upon the upper Part of the left or right *Os Parietale*, and so return to the Nape; after which run it forwards again along the other *Os Parietale*, above the Eye, and upon the Cheek, and so return again along the first Round to the Nape. Then raise it above the Ear, and make circular Convolutions round the Forehead, and at last make it fast by the Ear. In this Application you must take care not to gird the Eyes hard, for they are very sensible Parts, and the flux of Humours and Pain would thereby be encreased.

Here I can't pass by a great Disorder in the Eyes that I met with in my Practice, as being a fit Subject for *young Surgeons* to reflect upon. 'I was called to a young Lady in the Country, 'about six Leagues from *Paris*, that had a great 'Erysipelas or *St. Anthony's Fire* in her Face, her 'Eyes very much inflamed, and a violent In-'flammation in her Eye-lids, with a livid Co-'lour, and disposition to a Gangrene. Being 'all alone, without any Physician to consult, I 'scarified the two Eye-lids all over, and made 'a Digestive of the Yolk of an Egg, Myrrh, 'and Aloe dissolved in *Spir. Vin.* with which I 'anointed the Pledgits, applying above each 'Pledgit a round Compress to each Eye steept 'in a *Decoction of Roses, Wormwood, Fenugreek, 'Fleabane, Linseed*, and *Marshmallows*, in *White-'wine*. Before I applied the Compress, I moi-'stened the Eye-lids twice a Day with the same

'Liquor,

'Liquor very hot, making uſe of falſe Tents, 'for the Junction of the Eye-lids was very 'tenacious and apt to adhere. The Eyes were 'quite ſhut for ten Weeks, *viz.* from the mid 'dle of *May* to the End of *July*. I waited upon 'her all *June*, and confined her to an exact and 'ſuitable Diet, for there were ugly Symptoms 'about her, particularly a *Fever*, and a *Delirium*. 'She was blooded fifteen or ſixteen times, 'took ſeveral Clyſters a-day, and had Cauteries applied to her Neck and behind her Ears. 'At the End of *June* I brought her to *Paris*, 'and was aſſiſted by Dr. *Deuxvioye* all the 'Month of *July*, during which we continued 'to dreſs her with the abovementioned emollient Liquors, and at the End of that Month 'ſhe opened her Eyes, and ſaw perfectly well, 'having ſuffered no Alteration in the Body of 'her Eyes; and her Eye-lids were ſo well 'cicatrized, that no Scar was to be ſeen.

This Obſervation may afford Inſtruction to *young Students of Surgery*, who in the like Caſe happening to be deſtitute of the Aſſiſtance of a Phyſician, in the Country or elſewhere, may uſe the ſame Method, with a particular Care not to leave the Patient if they can ſtay by him, and to enjoin a ſuitable Regimen in the way of Diet. Upon this Occaſion I may ſay after *Galen*, *Averroes*, *Albucaſis*, *Guido*, and *Falco*, That though *Surgery* be a manual Operation, a Surgeon ought to be acquainted with ſome Principles of Phyſick, in order to be a

Judge of natural things, and to prescribe such Diet and Medicines as are proper for every Distemper.

The Nose has both *proper* and *common Bandages*; the *common* are three, *viz.* the *Sling*, the *Rag*, and the *uniting Bandage*. The *proper* are of two sorts, *viz.* the *Nose*, and *Fossa* of *Amyntas*.

The *Sling* ought to be an Ell long, and two good Inches broad. You must fold it into a double, and cut it along the middle lengthway into two Heads, leaving only the Breadth of two Fingers uncut. This Bandage is proper for the transverse Wounds of the Nose and the Cartilage, and is applied like that of the Forehead, by taking it into your two Hands at the Place where the Cutting ends, placing it upon the middle of the Nose, and drawing the upper Heads downwards to cross at the Nape of the Neck, and so be made fast at the top of the Head; the lower Heads being brought along the Cheeks, to cross likewise behind the Head, and be made fast upon the Forehead.

The *Rag* is a common Bandage of the Nose, which may serve for all its Disorders, excepting longitudinal Wounds. To make this, you measure from under the Nose to the Nape of the Neck, which makes about half an Ell; and that part of it which runs from the Nose to the Nape ought to have the Breadth of two large Inches; but what covers the Nose itself should be somewhat broader, which occasions its being called a *Rag*. The remaining part of

the Fillet or Swath muſt be ſlit as far as under the Noſe, and the Heads that cover the Noſtrils muſt be ſlit, to give way to Reſpiration. Under the Noſtrils, and above the Band, apply a ſmall Ribbon of half a Finger's Breadth, and an Ell in length, and make it faſt at the Nape: the two Heads that hang down muſt croſs one-another under the Noſtrils, ſo that *that* on the left Side moves to the Right, and that on the Right turns up on the Left, near the leſſer *Canthus's* or Corners of the Eyes, there to form the *Sparhawk*; and if there be a Fracture in the Noſe, you may make of the ſame Heads the *Foſſa* of *Amyntas*, by conducting them accordingly. The Head on the Right Side runs from before backwards above the Ear, and behind the Head; then it riſes obliquely above the left *Parietale*, and making a Croſs upon the Noſe, glides along the Cheek, and under the right Ear. The Head on the left Side takes the ſame Courſe with the other along the right *Parietale*, above the middle of the left Cheek, and under the Ear, ſo that the two Heads croſs one-another at the Nape, and then riſing on their reſpective Sides, come under the Ears; after which, they make circular Convolutions upon the Noſe, running from before backwards, and ſo croſs at the Nape, and at laſt riſing above the Ears, circulate round the Forehead.

The Bandage called the *Noſe*, is proper for the Venæſection performed on the Tip of the

Noſe, by making a Ligature in the Neck: It ought to be two Ells and a quarter long, and two Fingers broad. In order to apply, roll it up to a Head, hold the Roller in your right Hand, apply your Compreſs to the Tip of the Noſe with your left Hand, and keep it on with your Thumb; then meaſure upon the End of the Roller the Diſtance from the Tip of the Noſe to the Nape of the Neck, and hold the Roller at the End of the Part thus meaſured; this done, apply that very Place of the Roller where you hold it upon the Compreſs, and keeping it firm upon the Compreſs with the Thumb of the left Hand, hold the Ball or Roll ſtill in your right, and run it above the Suture called *Sagittalis*, from before backwards, and ſo paſs it above the Nape of the Neck, then under the Ear, afterwards upon the Cheek, and ſo on above the Noſe. Then take the End of the Fillet that hangs dangling down upon the Breaſt, raiſe it above the Noſe, along the *Sutura Sagittalis*, to the Nape, and ſo to the main Body of the Roll, with which you are to make three or four circular Turns, or more if there be occaſion, round the Noſe.

Having promiſed in my Preface to ſhew the way of reducing Fractures and Diſlocations, and of diſtinguiſhing their Signs, I find myſelf obliged to commence that Task with the Fracture and Luxation of the Noſe.

CHAP.

CHAP. IV.

Of the Fracture and Luxation of the Noſe.

THE Bones of the Noſe may be diſlocated, but the Accident is very unfrequent. I once ſaw a young Surgeon that had ſuffered a Luxation of one of the Bones of his Noſe by a Fall; and being imployed to ſet it right, I preſently diſcovered that the young Man's Noſe was very crooked, and ſet it accordingly. I took a ſmall Stick fitted to his Noſtril, and having covered it with Linen, conducted it into that Noſtril with my right Hand, and puſhed the Bone ſtrongly upwards, reſting the Thumb of my left Hand upon the Root of the Noſe; by this Means I put the Bone into its proper Place, and in rejoining the other Bone it made a Noiſe. There was no occaſion to lay any thing above it, becauſe here there are no Ligaments, and the Bones being only covered with their *Perioſteums*, can't ſlip out.

The two Bones of the *Noſe* may be fractured, and ſo may any one of them by itſelf, and the Reduction is not very eaſy, by reaſon of their Situation, Smallneſs, and Figure, for they are very thin in Subſtance, convex on the outſide, and concave within, in order to form the Noſtrils. By this Means it comes to paſs that upon a Fracture the Splinters ſink inwards; and the Difficulty lies in raiſing theſe ſmall

Fragments, and keeping them in a due Poſture of Union. However, with a little Dexterity the Reduction may ſometimes be accompliſht, by introducing into the Noſtril a ſmall Piece of *Fir*, or any other *ſoft Wood*, garniſhed with *Lint* or *Cotton*. If it be the left Noſtril, we muſt convey it in with the right Hand, and the Surgeon ought to reſt the Fore-finger of the left Hand upon the *Bone* of the *Noſe*, or upon *both*. If both are fractured, the Surgeon conveys his garniſhed Piece of *Wood* into one Noſtril, and a Servant thruſts another Piece of *Wood* into the other Noſtril; and the Surgeon makes the *Conformation* or *regular Poſition* with the End of his Fore-finger, or of his Thumb. This Proceſs being over, the Surgeon is to put in a leaden Pipe (or two, if the Fracture affects both the *Bones*) well armed with *Lint* or *Tow*, that it may be ſoft and inoffenſive.

The Pipe ſerves for two Uſes, *viz.* to keep up the due Poſition of the *Bones* thus ſet, and to procure Reſpiration. We tie them to the Patient's Cap with ſmall Ribbons on each Side. 'Tis needleſs to ſpeak of the Signs of this Fracture, ſince the Deformity or unwonted Figure of the *Noſe* is ſufficient to diſcover it; for nothing diſfigures a Man more than the *Noſe*'s being ſunk, or placed in a *crooked Poſition*; and if the Fracture be not remedied, 'tis followed by two very *troubleſome Inconveniences*. If the *Bone* continues ſunk and flat, the Patient will have a ſtinking *Noſe*; if it ſtands awry, nothing

thing is more unſightly and diſagreeable to the Eye. Upon this Conſideration I would have all *young Surgeons* be particularly careful in the Caſes of this *Fracture*, and omit nothing that's proper to be done upon the Occaſion.

The Bandage for the Fracture of the *Noſe* is the *Foſſa* of *Amyntas*, which is made of a Fillet three Ells long, and of the Breadth of one's little Finger. The Dreſſings conſiſt of ſmall Compreſſes and Paſtboard to contain the *Bones*. There ought to be two ſmall Compreſſes of Linen, doubled four times, two Inches long, and half a large Finger broad, which are to be laid along each ſide of the *Noſe*, to fill up the Cavity of the great *Canthus*; and above theſe we ſhould lay ſmaller Compreſſes. We are likewiſe to lay on another Compreſs of Linen in a triangular Form, of the ſame Breadth with the *Noſe*, and guard it with a ſmall Piece of Paſtboard of the ſame Figure, the *Paſtboard* and *Compreſs* being ſewed together. This little *Compreſs* and *Paſtboard* ought to be laid upon the *Longitudinal Compreſſes*, and its Points ſhould reach to the Tip of the *Noſe*. This done, we take two other *Compreſſes*, the Breadth of one Finger, and eight Fingers Breadth long, and apply it croſs-ways, ſo that the middle of it falls upon the *Root* of the *Noſe*. In the mean time 'tis ſtill to be remembered, that the little Pipes mentioned above are to continue in the *Noſtrils* (or only *one Pipe in one Noſtril*, if only *one Bone* be

broken) till the Reunion is accomplished. The Fracture is to be tied up with a Fillet or Swath the Length and Breadth prescribed before, rolled up to a Head. If you begin from the left Side, you must hold the Roll with your right Hand, and the End of the Roller with your left, which you are to place on the Nape of the Neck, and there keep it firm. With your right Hand you draw the Roller obliquely over the lowest Part of the Cheek that you can reach, passing it above the *Os Parietale*, and by the Nose; then rising upwards to the upper Part of the right *Parietale*, you run it behind the Head, and so return forwards above the left *Parietale*, over against the other Head; then having crossed the two Heads upon the Nose, you descend by the lowest part of the right Cheek, so that the two Rounds of the Roller upon the Cheeks may be equally low. After that, you continue to roll from the right Cheek to the back Parts of the Head, as low as you can go, and then make a Round upon the Nose from before backward. This done, you turn along the middle of the *Os Occipitis*, and at last make a Circle round the Forehead, in order to make fast the Bandage.

CHAP.

CHAP. V.

Of the Bandage *of the Ears; and of the Cap of the Head.*

THE proper Bandages of the Ears, are Slings with ſix Heads. The Linen of which the Sling is made muſt be three quarters of an Ell long, and four Fingers broad. You firſt fold it into three Doubles, then fold it again in the middle; after which the end of the Plait muſt be folded in about the breadth of two inches; then you cut the Linen at the two ends, on each ſide, to the Mark of the Plait or Fold, which gives you ſix Heads. You muſt take care to cut but very little of theſe ends of the Fillet. Having dreſſed *one* or *both* Ears with proper Remedies, you're to lay two Compreſſes of the ſame Figure with the Ear, one above, and another under the Ear; then you place the uncut Part of the Sling upon the Ear, not acroſs, but lengthways, ſo that three Heads may riſe upwards, and the other three fall downward, and paſſing under the Chin, riſe again to the top of the Head, where all the ſix join one another. This Bandage is a *Contentive Bandage* for the *Wounds* and all other *Diſorders* of the Ear.

Tho' the Cap is rarely uſed for the Head, yet conſidering that 'tis made uſe of in Amputation of Arms and Legs, I would have young

Students to know it, that they may be capable to uſe it upon Occaſion. The Fillet of which 'tis made ſhould be about ſix Ells long, and two large Inches broad. It muſt be rolled up in two Balls or Heads, one to be held in each Hand; then placing the middle of the Fillet upon the Forehead, you advance the Ball of the right Hand to the left Ear, and there ſtop; after that you advance with the Ball in the left Hand that reſted upon the Forehead, beyond the right Ear, where you ſtop till the Ball in the right Hand comes to the Nape of the Neck; then the Ball in the left Hand advances likewiſe to the Nape, where your Hands are to exchange Balls; after which, while the left Hand holding the Ball that was in the right, reſts upon the Nape, the right Hand with the Ball muſt paſs above the left Hand, and advance to the right Temple, where it ſtops and ſtays for the other: This done, the left Hand that was poſted at the Nape, raiſes its Ball by a *Reflection*, and paſſes over the *Sagittalis Sutura*, upon which the Thumb being planted directly upon the middle of the Ball, 'tis drawn directly to the Root of the Noſe, where it reſts under the Fore-finger of the left Hand, while the Ball in the right Hand paſſes above the firſt Head, upon the Forehead; and there the two Hands exchange Balls again, and the right Hand keeping faſt the Ball upon the lower Part of the Forehead, the left advances as at firſt, beyond the right Ear,

Ear, and there ſtops; upon which the right that reſted upon the Forehead, raiſes its Ball with a renverſed turn in forming a ſecond *Doloire:* And thus, by continuing to round in the ſame manner from behind forwards, and from before backwards, ſo that the Fold of the renverſed turns are all one above another, both on the Forehead and the Nape, the *Capeline* or *Cap* is finiſhed by *Doloires*, and the Head is covered all over.

I know very well that there's another Way of making it, by running the Fillet along the lateral Parts of the Head, and making the renverſed turns both at the Forehead and the Nape; the uſe of which is to keep the Sutures tight; but conſidering that 'tis very uncommon, I wave the Deſcription of it. 'Tis ſufficient for any young Beginner to know the Method I have now laid down, which will prove very eaſy upon the leaſt Reflection. In the mean time, 'twill be proper to take notice, that all Caps are made by three Bandages, namely, the *Circular*, the *Renverſed*, and the *Doloire*.

Having thus demonſtrated the common Bandages of the Head, and part of thoſe of the Face, and the Way of applying them, it remains to touch upon thoſe of the lower Jaw; to which I muſt firſt premiſe the Fractures and Luxations of that Part, with their Signs and Ways of Reduction, but not in a diſtinct Chapter, for my Method leads me to include

all relating to one Part in one Chapter, as I have already done in treating of the Fractures and Luxations of the Noſe.

CHAP. VI.

Of the Signs by which we diſcover a Fracture and Diſlocation of the lower Mandible, *and of the Means to reduce it, with the proper Bandages, and the whole Proceſs of the Dreſſing.*

THE lower *Mandible* may be fractured all over the extent of its Body, which includes all the Teeth. When 'tis broken in the middle, the Signs are apparent, and obvious enough both to view and touch. If 'tis broken obliquely into Splinters, you muſt put your Fingers into the Patient's Mouth, and preſs up the Eminencies both on the inſide and the outſide, in order to unite the Ends one with another; If the Fracture runs quite thro' a-croſs, ſo that the Ends lie one againſt another, you muſt make an Extenſion and counter Extenſion, by pulling with your two Hands, the one forward, and the other backward, in order to join the Bones one with another; and if the Teeth are divided, ſhattered and ſtruck out of their Sockets, they muſt be reduced to their proper Places, and joined and faſtened to thoſe which are faſt, with a ſilver

or

or gold Wire, or ſmall braſs Wire, or elſe upon a freſh Occaſion, with a waxed Thread. The Teeth ought always to continue thus chained till the *Callus* is made.

As the lower *Mandible* may be broken ſeveral Ways, *viz.* either into Splinters, or acroſs or lengthways, ſo it creates a great deal of trouble to a Surgeon, by reaſon both of its Figure and its Action, and eſpecially when 'tis broken into ſeveral Splinters.

I can't well ſhew the manner of reducing all the Fragments of the Jaw; a thorough-paced Knowledge of that Matter depends upon the Induſtry of a skilful Practitioner. But that our Surgeons may not be quite deſtitute of Inſtruction, I muſt acquaint them, that in ſuch Caſes they muſt have recourſe to Advice from others; and above all, when they examine the Bigneſs and Extent of the Fracture, they ought to conſider the Figure of the whole lower *Mandible* that forms the Chin. The true Way will be to invent upon the Spot a Machine, whether of white Iron, or of Leather or Paſt-board, which is very much in Uſe. For if there are ſeveral Splinters in the *Mandible*, then you muſt compreſs it the harder, and make uſe of a Chin-piece made of Tin, armed with Cotton, and good Linen Compreſſes. The *Sling* with four Heads, deſcribed above for the Chin or the Forehead, may be uſed upon this Occaſion. But when the lower *Mandible* is broken in length or

croſs-ways, you're to make uſe of Compreſſes of Linen and Paſt-board, of the ſame Figure with the lower *Mandible*, or as near as they can be. Here I addreſs myſelf only to young Surgeons; if they're acquainted with the Figure of the Bone, I'd give them the Advice of *Pareus*, one of the greateſt Practitioners of his time, *viz.* That *that* which in his Youth inſtructed him perfectly to reduce Fractures and Luxations, was the gathering of Bones in the *Church-yard*, with intent to view 'em narrowly.

After a due Survey of the Figure of the lower *Mandible*, and the means to reduce it, we muſt endeavour to keep up the Union by Bandage and Compreſſes. The Bandage is called the compound *Horſe-Bandage*, with alluſion both to its Figure and Uſe; for by its Figure it repreſents the Way of bridling a *Horſe*, and its Uſe conſiſts in preſerving and guarding the Union of the Bones. The Bandage ought to be made of a Piece of Linen folded in four Doubles, as I ſaid before. It ought to be ſixteen Fingers breadth long, and have a Hole or Slit in the middle to receive the Chin. Then you muſt have another Compreſs of Linen ſewed to a Paſt-board, of the ſame Figure with the Compreſſes, and open in the middle. Let the firſt Compreſs be ſteeped in ſome Anodyne or Defenſative, ſuch as the Yolks of Eggs beaten up in Vinegar and Water, and apply the Slit of it to the middle of the Chin, pinning it to the Patient's Cap,

on

on each ſide the Temples. The ſecond Compreſs, with its Paſt-board, ſhould be applied in the ſame manner. As for the Fillet for the Bandage, it muſt be ſix Ells long, and two Inches broad, and being rolled up in two Balls or Heads, ſhould be applied under the Chin, and from thence mount upwards along the Cheeks, near the leſſer *Canthus* of the Eyes, till it comes at the Crown of the Head, where it croſſes, and the two Hands ſhift Balls; this done, you muſt deſcend to the Nape of the Neck, and after croſſing and ſhifting Balls again, return from behind forwards under the Chin; there you muſt croſs again, and then re-aſcend to the Nape, and after croſſing again, return under the Chin, from whence riſing upwards upon the Cheeks, you make a third *Doloire* on each ſide. This done, you croſs yet again upon the Crown of the Head, and re-aſcending to the Nape, croſs yet once more, and ſo return under the Chin, where you are now to obſerve, that you muſt not croſs, but paſs the Ball in the right Hand above the Chin, and under the Ball of the left, running it to the right Ear, where you ſtop a little. Then the right Hand takes the Ball of the left, and paſſing above that of the right, circulates it upon the Chin; after which you re-deſcend to the Nape, to croſs after the uſual manner, and make a circular turn round the Forehead; and if the Fillet be too long, you muſt run it once more about the Chin.

Chin. This is what we call the *Chin-cloth.*

This I take to be a ſatisfactory Account of the Fracture of the lower *Mandible*; it remains now to treat of the Signs of its Luxation, and the Means to redreſs it.

We know that the lower *Mandible* is diſlocated, firſt, when the Chin turns to one Side, and the *Condylus* makes an Eminence on the other; and ſecondly, when the Mouth ſtands awry.

The *Mandible* may be diſlocated either forwards or backwards, but more readily forwards, becauſe the upper Part of the *Glenoides* Cavity of the *Temple Bone* is ſmooth, even and ſlick, which makes the *Condylus* throw to the fore-ſide rather than backward, and in that Caſe the Chin leans a great deal more to the diſlocated Side, than when the *Condylus* flies backwards, and reſts upon the *Maſtoides Apophyſis.*

There are two Signs by which we diſtinguiſh the one Luxation from the other: The firſt Sign that ſpeaks a Diſlocation backwards is, that the Chin does not lean ſo much towards the Side of the Diſlocation; and the other Sign of the ſame Importance, is, that the *Condylus* makes no Eminence on the ſound Side. For an experimental Proof of this, take a lower *Mandible*, ſeparated from the Head, and place the right *Condylus* in its Cavity, ſuppoſing the left to be violently out, and reſting upon the *Maſtoides Apophyſis*, you'll then ſee that the Chin does not lean ſo far to the right Side,

Side, and the *Condylus* of the ſame Side does not jut out.

Such are the juſteſt Signs we can give of the Diſlocation of one ſide of the *Mandible*, either forwards or backwards.

To ſet the lower *Mandible* diſlocated, the Patient ſhould be placed lower than the Surgeon, with a Servant behind him to hold his Head, with his two Hands upon his Forehead, the Head being ſtrongly ſupported by the Servant's Breaſt. The Surgeon ought to chuſe the moſt convenient Poſture, which I take to be that of ſitting upon his Knees before the Patient. If 'tis the right ſide of the *Mandible* that's diſlocated, he muſt put into his Mouth his Thumb, guarded with a ſmall Fillet, both to reſt the ſurer upon the Grinders, and to prevent his Thumb's ſlipping or ſliding off. If one Thumb is not ſtrong enough, he muſt put in both his Thumbs, and forcibly pull the *Condylus* of the *Mandible* downwards, and ſo puſh it into the Cavity. This is what we properly call Impulſion.

The Luxation being thus reduced, he muſt lay the Bandage called the *ſimple Horſe-Bandage* upon the diſlocated Side. The Fillet ſhould be three Ells long, and two Inches broad, and rolled up to a Head. After the Compreſs is applied under the Chin, and conducted along the Cheeks, it muſt be made faſt on the fore Part of the Ears. If the Diſlocation is on the right Side, the Surgeon takes

takes the Ball or Head in his right Hand, and the end of the Fillet in his left, and ſo places his two Hands behind the Head. Then he paſſes the Ball in his right Hand under the Chin, and under the End of the Fillet that he holds in his left; after which the right takes hold of the End formerly held by the left, and ſtops, and then mounts upwards by the back Parts of the Cheek, over the diſlocated *Condylus*. This done, he makes the firſt Round of the *Horſe-Bandage* from below upwards, and then deſcends to the Nape; after that, paſſing the Fillet under the Chin, on the right Side, he riſes equally upon the firſt Caſt of the Fillet, and coming to the upper Part of the Head, begins to make the firſt *Doloire* from behind forwards; then he runs it again under the Chin, and re-aſcends by the left Side upon the ſame Caſt. Here Care muſt be taken that the Rounds lie equally one above another on the ſide that is not diſlocated; but this Caution extends only to the ſimple *Horſe-Bandage*. This done, he returns to make the third *Doloire* after the ſame manner with the former two, running from behind the Nape, makes circular Turns over the middle of the Bone of the *Occiput*, about the right Ear, and ends with two Rounds above the Forehead.

We know that the *Mandible* is diſlocated on both ſides when it hangs down upon the Breaſt, and the whole Chin advances forwards; when

when above the *Mandible* we ſee the temporal Muſcles bent, when the *Saliva* drills from the Mouth of the Patient, he being uncapable to retain it, and the Patient can neither ſhut his Mouth, nor move his Tongue in order to ſpeak. The Reduction of a Luxation on both ſides, is more difficult than that of one ſide, and the Symptoms are more grievous. It behoves us to reduce it with all Expedition, in order to prevent the Pain, Inflammation, Convulſion, and oftentimes Death, which enſues on the ſeventh or eighth Day, ſooner or later, according to the Conſtitution of the Body. All good Practitioners agree, that after 'tis well reduced, it becomes firm in twelve Days, and then cannot fall off.

To reduce the Luxation of a *Mandible* on both ſides, you muſt lay the Patient upon the Ground, or place him upon a little low Chair, and hold his Head faſt. Then the Surgeon placing himſelf before him in the moſt convenient Poſture, muſt run into the Patient's Mouth his two Thumbs, each of them guarded with a ſmall Fillet, to prevent the Teeth, as well as to hinder them to ſlide off. If the Reduction can't be accompliſh'd by this Means, by reaſon that the Mouth is ſo cloſe ſhut that he can't put in his two Thumbs, he muſt have recourſe to little Wedges of Fir, of a ſquare Figure, and as big as one's Finger, which being put upon the Grinders to puſh the *Condylus's* downwards, will ſerve to ſet the *Mandible*

dible in its Place, when 'tis puſh'd from below upwards by the Servant that ſits behind the Patient; for which end he puts a Fillet under the Patient's Chin, and pulls it upwards with great Force, reſting his Knees upon the Shoulders, the Surgeon at the ſame time puſhing the *Condylus's* downwards, to re-place 'em in their Cavities. The Reduction being made, the Surgeon makes his Bandage, applying a Compreſs under the Chin as long as the breadth of ſixteen Fingers, which is not at all open, but ſoaked in Oil of Roſes beaten up with the White of an Egg. The Bandage is the compound *Horſe-Bandage*, which is a Fillet done up in two Rolls (as I intimated above in ſpeaking of the Fracture of the lower *Mandible*.) This Compreſs being placed under the Chin, muſt be made faſt on each ſide of the Temples, being cut ſloping in the two Ends like a Half-Moon, to anſwer the Figure of the lower *Mandible*. The Fillet is applied by putting the two Rolls under the Chin, and ſo mounting upwards under the Ears, croſſing upon the Top of the Head, by ſhifting the Roller naturally from one Hand to the other, after which they deſcend to the Nape of the Neck, then croſs and run under the Chin; then they croſs again, and ſo riſe up on each ſide along the firſt Rounds. This done, they make two *Doloires* from behind forwards, on each ſide, then they croſs on the top as before, after which they re-deſcend to the

the Nape, croſs there, and re-paſſing under the Chin, croſs again, and riſe up along the Cheeks in a third *Doloire*; after which they croſs yet again, both above and at the Nape, and re-aſcending above the Ears, end in circular Turns round the Forehead.

Having thus endeavoured to explain, as much as poſſible, the Application of the Bandages of the Head, it remains now to ſhew the Application of the Bandage called *Diviſive*, which is very neceſſary in Practice. It conſiſts of a Fillet done up in two Rolls, about five Ells long, and two large Inches broad, which being applied to the middle of the Forehead, runs from before backwards, and then croſſes at the Nape of the Neck; then paſſing from behind forwards, under the Armpits, returns from before backwards, and croſſes at the Nape; after that mounting up behind the Ears, it croſſes upon the Forehead, re-deſcends to the Nape, and croſſes once more; at laſt, repaſſing under the Armpits, the two Rolls or Heads make a circular Turn round the Body.

The Bandage called *Diviſive* ſerves for the Burnings of the Chin, Neck and *Sternum*: Whether it be in Children that fall in the Fire, or in an Army, when on the burſting of Cannon, the firing of Magazines, or other Accidents, the Men are burnt either all over the Body, or only in ſome Parts, as the Head, Chin, Breaſt, *&c.* Thus I ſaw, at the Siege of *Baſſée*, in

in *Flanders*, at which the two Batteries of Cannon unfortunately burſt, three Gunners were burnt almoſt all over the Body: One of theſe three was burnt almoſt all over the Breaſt, the Neck, and the Chin, and ſo there was Occaſion to make a diviſive Bandage for him.

For the Advantage of young Students in Surgery, I ſhall here relate what we cured theſe great Burnings with, for I was then in the Hoſpital of the Army. The Remedy we made uſe of with Succeſs, was no more than a *Nutritium* made in the following manner:

Take of *Ceruſs* 8 Ounces, common *Oil of Walnuts* 12 Ounces, *Plantane* and *Roſewater*, or, which is better, *Juice of Houſleek* 4 Ounces, with about an Ounce of *Vinegar*; mix all in a Marble or Leaden Mortar, putting in firſt a little of the *Oil*, with a little of the *Ceruſs*, a little *Water* or *Juice*, and a little *Vinegar*, and ſo alternately till all's in; ſtir it with a wooden Peſtle for ſix Hours, and ſo nouriſh it to the Conſiſtence of a *Nutritium*.

As for the Neck, the Bandage that properly belongs to it is a *contentive Bandage*, made of a Fillet an Ell long, and two Fingers broad, the middle of which is applied to the Head, with the two ends dangling down upon the Shoulders on both Sides: After which they take another Fillet about two Ells long and three Fingers broad, done up in a Roll, and with that make ſeveral circular turns, and ſo make it faſt round the Body. This laſt Fillet muſt not

not gird at all. As for the two Heads or Ends that hang down, they are then raiſed up, and made faſt upon the Crown of the Head.

The Breaſt has its Bandages both *Common* and *Proper*. The *moſt common* is the *Napkin* with the *Scapulary*, which is called the *Scarf of the Breaſt*, and may be uſed in ſeveral Caſes, ſuch as the Operation of an *Empyema*, or a *Paracenteſis*, in all the *Wounds* and *Fiſtula's* of the Breaſt, in fractured and diſlocated Ribs, and in a Fracture or Luxation of the *Sternum*. Each of theſe Bandages ſhall be ſpoke of in their proper Places, when I come to treat of the Diſeaſes of every Part, as they are naturally ſituated.

CHAP. VII.

Of the Fracture of the Clavicula, *or Channel-bone.*

THE Channel-bone may be broke forwards, backwards, or in the middle. 'Tis obſervable, that whatever way it breaks, the end which articulates with the Shoulder-blade is ſtill lower than that end that joins the *Sternum*, by reaſon that the Arm makes it lean downwards.

If the Fracture is tranſverſal, 'tis eaſier to reduce than a round Fracture, upon account that in a tranſverſal Fracture the broken Bone returns to its place, by being raiſed to one ſide

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or t'other with the Palms of one's Hands and the Fingers; but in a round Fracture 'tis hard to keep the two Ends one upon the other, and they are not ſo ready to glue together. If the Fracture is round, you muſt ſet and pull the Arm backwards, while a Servant pulls the Shoulder forward from his Oppoſite. If the Fracture is tranſverſal, whether forwards or backwards, in order to reduce it, you muſt place the Patient upon a Chair without Arms, after which ſet your Foot againſt the Chair on which the Patient ſits, and with your Hands take hold of the two Ends of his Shoulders; then pull ſtrongly from before backward, puſhing with your Knee from behind forward: And if it ſo happens that you can't reduce it thus, by reaſon of one of the Splinters ſunk downwards, lay the Patient on his Back, upon ſomething that's hard, as a Kettle, Pan, ſquare Stone, or any thing that's proper, covered with a coarſe Covering; and placing yourſelf in a convenient Poſture, preſs the two Palms of your Hands with all your Force upon the two Extremities of the Shoulder-blades, from above downwards: And if, after all, there remain any Splinters of the broken Bone that could not be reduced, you muſt make an Inciſion, and take them out with Pincers, cutting the Points that gall the Fleſh.

If the Fracture is oblique, or tranſverſal, or if there be many Splinters, you muſt bring 'em together as near as you can, and on that occaſion

ſion heedfully guard the Cavities that lie above and below the Channel-bones. If only one Channel-bone be broken, you muſt apply four Compreſſes in four Doubles, ſoaked in an aſtringent Defenſive made of *Bole-Armoniac*, *Whites of Eggs*, *Dragons-blood*, and *Roſin*, all beaten together. Some apply the Defenſive hot in Winter, and lukewarm in Summer, but the better way is to have it hot in all Seaſons. The abovementioned Compreſſes being carefully applied both above and below the *Clavicula*, you're to add two other Compreſſes, covered with Paſtboard, and ſewed, to make them pliable; theſe you're to apply over the others in the Form of St. *Andrew*'s Croſs, and they ought to be cut to the Figure of the *Clavicula*.

The Bandage is made with a Fillet ſix Ells long, and four Fingers broad, done up in two Rolls or Heads held in the Surgeon's Hands: The Fillet muſt be run under the Patient's Armpit, then mount croſs upon the Proceſs called *Acromion*, after which one of the Rolls ſhould be carried forwards, and there held faſt, while the other turning behind, paſſes under the ſound Armpit from behind forwards, and runs above the Roll held faſt on the Fore-part. The making of this Bandage requires two Perſons, one to make the Renverſed, and the other the circular Rounds: And he who makes the Renverſed muſt be very careful in doing his Duty. He takes the Roller in his right Hand, holding it faſt between his four Fingers, with

his Thumb upon the middle of it; then he riſes with a renverſed Turn upwards above the Channel-bone, as near the Neck as he can, lowering the Roll that makes the Renverſed juſt by the Armpit. Then he ſtops and holds faſt, while the other which makes the circular Rounds about the Body paſſes above the Roll thus ſtopt, and then the Surgeon makes the renverſed Turns with his left Hand. Then he runs the Roller above the firſt Caſt of the Fillet, which he covers three times equally all over. After that, he continues the *Doloires* till the Channel-bone is quite covered. This is eaſily done without any Perplexity, for the two firſt renverſed Convolutions, both before and behind, ſerve for a Rule and Direction to all the reſt. You muſt know, there's one Roll or Head that makes the Renverſed, and another that makes the circular Convolutions. With the laſt we make the *Geranium*, which is done by drawing the Head of the Fillet from before backwards: Then we bring two Turns to the upper Part of the *Humerus*, covering all the renverſed Turns, and after paſſing under the oppoſite Armpit, make Rounds about the Body, as long as the Fillet ſerves. Of the other Head that makes the renverſed Turns we make a Sling for the Arm, or elſe bring it to circular Rounds, after the ſame manner with the other, and provide a Gentleman's Scarf, which is better for holding the Arm.

CHAP.

CHAP. VIII.

Of the Luxation of the Channel-bone.

THOUGH the Channel-bones are articulated with the *Acromion* Proceſs of the Shoulder-Blade and the *Sternum*, by very cloſe and tight Cartilages and Ligaments, yet *Galen* ſays, that he underwent a Diſlocation of the *Clavicula*, which created inſufferable Pain; that he bore ſuch a tight Bandage as no Man elſe would have bore, and after having the Bandage upon him for a long while, was cured at laſt. *Upon this Subject I ſhall only ſtay to make one Reflection that's of uſe in the way of Practice, namely, that when the Channel-bone is fractured in the upper Part, near the Articulation of the Shoulder-Blade, you muſt make the Bandage called* Spica, *which comprehends the* Geranium; *but if 'tis fractured in the middle, or near the Articulation of the* Sternum, *you muſt apply the* Capeline.

CHAP. IX.

Of the Luxation of the Humerus.

THE Bone that's articulated with the *Omoplata* or Shoulder-Blade, is called *Humerus*, or *Os adjutorium*, becauſe 'tis ſtrongly borne up above, both by Muſcles, and by the *Apophyſes* of the Shoulder-Blade and the Channel-

bone. *Hippocrates* calls it the Arm, or Bone of the Arm. In this Bone we muſt firſt of all remark its Head, which is round, very ſmooth, ſlick, and poliſhed, and lodged in a ſuperficial Cavity, that has neither Borders nor Ligaments, like the *Iſchium* and the Knee: Beſides, this Cavity is filled with a viſcous ſlimy Matter, to facilitate the Motion of the Arm and Hand, which, as *Galen* has well obſerved, are the principal Inſtruments of Reaſon: And indeed, if we conſider the Uſe of this Member with reference to Mechanicks, we muſt own, that to it we owe all the fine Pieces of Workmanſhip that the World boaſts of; and that Nature has diſplayed a wonderful Ingenuity, in allotting the Arm all the Advantages that render it ſo convenient, and even ſo neceſſary in the Courſe of Life. Upon this Conſideration 'tis at once both juſt and neceſſary that we ſhould preſerve this Part in its natural Poſture as much as we can.

Galen ſays, the *Humerus* may ſuffer Luxations four ways, *viz.* upwards, downwards, forwards, and backwards. *Hippocrates* ſays, he never ſaw the *Humerus* diſlocated forwards; and adds, that he does not think ſuch a Luxation is poſſible: But *Galen* makes an Apology for this Saying of *Hippocrates*, upon the Plea, that the Country where *Hippocrates* lived and practiſed was but thin of Inhabitants, and conſequently did not afford ſo many Inſtances of Wounds and Accidents as *Rome*, which was

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the Reſidence of *Galen:* And to this Purpoſe *Galen* affirms, that there were more People in one Street at *Rome*, in his time, than there were in *Hippocrates*'s time in all the Country where he lived. *Galen* adds, That he had ſeen a Luxation of the *Humerus* forwards five times; once at *Smyrna* in *Aſia*, and four times at *Rome*. One of the Cauſes that produced this Sort of Luxations, he ſays, was the Wreſtling Games, that were very frequent at *Rome* in his Time. The other Cauſe proceeded from no other Source but the Ignorance of the Bone-ſetters. He adds, That he ſaw two Men at *Rome*, who had the Heads of the two Bones under the Armpits, and aſſured him, that inſtead of one Diſlocation, they had undergone two apiece. Now *Galen* perceived well that this proceeded from the Ignorance of the Surgeons, as being unacquainted with the Nature of the Articulation, and that they had with great Violence puſhed the Bones from behind forwards. Upon this Head I can't but take Occaſion to caution *young Surgeons* to take Care of falling into this Error in the like Caſe, and to inform them, that if they obſerve the Precepts of *Hippocrates*, they'll never be liable to ſuch Miſtakes. Since the *Humerus* can only be luxated three ways, *viz.* downwards under the Armpit, forwards, and backwards, the Luxation upwards being rather a Fracture of the *Omoplata* or Shoulder-Blade, both in its *Acromion* and in its *Caracoides* Proceſs, I ſhall confine myſelf to the Luxation

known by *Hippocrates*, namely, that downwards under the Armpit, and lay open the Signs to know it by, and the Means to reduce it four ways.

The Signs of a Luxation of the *Humerus* in its lower Part, are, when you find a Cavity on the Shoulder, and the Extremity of the *Spina* of the Shoulder-Blade, called *Acromion*, bends outwards, becauſe the Head of the Bone of the Arm ſlipping under the Armpit, makes an Eminence; the Elbow throws itſelf outwards, and falls off upon the Sides, but if you preſs it with Force, you may make it anſwer the Touch; the Patient finds more difficulty in bending his Arm forwards than backwards, the Arm is longer than it was, the Patient can't raiſe it on the oppoſite Shoulder, or touch his Mouth; in handling his Arm he feels a violent Pain, by reaſon that the Muſcles are much bent and preſſed, though (after all) Pain is not always the moſt certain Sign of the Luxation: As in the Caſe of the rendring or breaking of ſome Fibres, the Arm can't raiſe or extend itſelf, and its Action may be diſturbed by a *Contuſion* upon the *Deltoides* Muſcle, an *Inflammation*, an *Impoſtume*, and other Accidents.

In the *Cure of Luxations* there are three general Intentions; the firſt is to ſet the Bone in its right Place; the ſecond, to keep the Bone in this its due Poſture; and the third, to correct the Accidents that happen. The firſt Indication is anſwered three ways, namely, by *Extenſion*,

Extenſion, *Retenſion*, and *Impulſion*. As I pretend to ſhew the Reduction of the Shoulder three or four ways, which I have followed in my Practice, and are like to be made uſe of by other Practitioners, I ſhall begin with the *moſt common* and *convenient Reduction*, which takes Place when the Bone is eaſily ſet, the Luxation not being of long ſtanding, and the Patient not very fleſhy. In this Caſe, place the Patient upon a Chair without Arms, and lower than the Surgeon: If the Luxation is in the left Shoulder, order a Servant to graſp the Patient on the right Side, and claſp his Hands faſt, the one upon t'other, under the Armpit of the diſlocated Arm; then the Surgeon takes hold of the upper Part of the diſlocated Arm, under the Armpit, with his two Hands, one on the outſide, and t'other on the inſide, placing his Thumbs upon the upper End of the Arm, one againſt another. This done, a Servant takes the diſlocated Arm between the Surgeon's Legs, holding by the lower Part of the *Humerus*, and pulls it forcibly downwards as much as he can; upon which the Surgeon makes the Impulſion, keeping faſt hold of the Arm, as above. In making this Impulſion or Shove, he muſt ſtill keep in view that excellent Precept of *Hippocrates*, of knowing whence the Bone ſlipt out, what Road it took, and where it ſtops; for it muſt always go back the ſame way it ſlipt out. This being well conſidered, the Surgeon muſt make three different

Motions, and all almoſt at once; the firſt in drawing the Arm from behind forwards by a Line; the ſecond in raiſing it upward; and the third in puſhing it directly into its Cavity. When the Bone re-enters its Cavity, it always makes a Noiſe. The Bone is known to be ſet when the Patient can put his Hand to his Head and behind his Back.

The ſecond way of ſetting the Shoulder, is to ſingle out a Man that's bigger than the Patient, and place the Patient's Armpit upon the Tip of his Shoulder. If the Luxation be in the left Arm, he takes hold of the lower and inner Part of the *Humerus* with his right Hand, and with his left Hand graſps the Wriſt of the diſlocated Arm, the Hand of which muſt be placed in its natural Figure, with the Thumb pointed upward, and the little Finger towards the Ground: In this Faſhion he pulls the Arm with his two Hands with all his Force, reſting them upon his Breaſt. Then the Surgeon embraces the Patient on the right Side, and with his right Hand puſhes as forcibly as he can the Head of the Bone that's under the Armpit, from below upwards, and with the Palm of his left Hand behind preſſes the Extremity of the *Omoplata* downwards, in order to lower the Cavity, by which means the Head of the Bone enters with great Facility.

The third way of reducing the Shoulder, is with a Napkin; and this is a very ready and commodious way. You take a Liſt of Cloth

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or a ſtrong Ribbon, about an Ell and an half long, and an Inch, or two Fingers breadth, over: This you fold in at the middle, making a running Knot of one of the Heads, and another running Knot of the other Head. The Knots being joined after the Arm is put thro' them, you apply them to the inner Part of the diſlocated Shoulder, upon a *good Compreſs* of Linen four times doubled, and laid circularly round the Arm. The Knots muſt fall at the external lateral Part of the *Humerus*, above the Compreſs; then you draw them as hard as you can, running the two Heads from without inwards; after that you pull the two Heads from within outwards, above the external Part of the Elbow; the Patient being ſet, as I have ſaid, upon a Chair without Arms. This done, a Servant muſt come and embrace him upon the ſound Side, and hold him faſt with all his force. If the Patient's Seat is not large enough, another muſt be got, upon which the Surgeon is to mount, having hung about his Neck a Napkin folded in the middle, and tied at the two ends: Then a Servant comes behind the Surgeon, and draws the Arm with the Liſt between the Surgeon's Legs, pulling it down with force downward, from without inwards, at the ſame time that the Surgeon graſps the head of the Arm, and raiſing the Arm, with the Napkin about his Neck, pulls it with his two Hands from the out to the inſide, bearing his Hand towards the other Shoulder,

by which means he thruſts it into its Cavity.

The fourth Way of reducing the Shoulder, is with the Heel, when the Patient can neither ſtand nor ſit. The Patient is laid on his Back on a Quilt or Covering, and a Clew of Thread or a Ball of Leather filled with Saddle-ſtuffing or Cotton, proportionable to the Capacity of the Arm-pit, is put in it; then the Surgeon ſitting oppoſite to the Patient, before the diſlocated Arm, reduces the Bone, if it be the right Shoulder, with the right Heel, and with the left Heel if it be the left Shoulder: He graſps the lower Part of the Patient's Arm above the Elbow, and pulls it down towards the Feet, at the ſame time puſhing the Head of the Bone upwards with his Heel. While this is doing, another Servant keeps up the Arm with a Handkerchief, a fine Napkin, or a piece of Liſt, and with the Sole of his Foot preſſes the Shoulder downwards, to facilitate the re-entrance of the Head of the Bone into its Cavity. This Method is indeed *very good.*

Here I only take notice of what is moſt regular in theſe four Methods of reducing a Luxation of the *Humerus*; and I'm fully perſuaded, that unleſs the Diſlocation be of very long ſtanding, and the Body very corpulent, *young Surgeons* will ſucceed, if they obſerve the Methods now laid down. But if after all neceſſary Precautions they can't compaſs the end, then recourſe muſt be had to Machines, ſuch as the *Gate*, the *Ladder*, the *Gloſſocomus* of *Hippocrates*,

pocrates and the *Lambi*. For my part, I can ſay and affirm, that without ſuch Machines I have ſet diſlocated Shoulders in Perſons of all Ages, ſome above 80 Years old, both *Men* and *Women*; but at the ſame time it muſt be remember'd, theſe *Luxations* were of no long ſtanding.

After the reduction of the *Humerus*, you muſt make the Bandage called *Spica*, which is done two Ways; firſt, with a *Swathband* rolled up to one Head; and ſecondly, with a *Roller* done up to two Heads. Before you put on the Bandage, you muſt apply the Dreſſings, conſiſting of a round Ball or Cuſhion of the bigneſs of an Egg, ſtuffed with *Cotton* or *Worſted*, and laid under the Arm-pit; then a large Piece of Linen cut into half *Malta* Croſſes, with a Compreſs of four Plaits, cut in the ſame Shape, ſteeped in Vinegar and Water, and covered with the Whites of Eggs beat up with Oil of Roſes. This Compreſs muſt be applied very hot to the Shoulder above the Cuſhion; and then, in order to tie up the Shoulder with a *Roller of one Head*, you muſt begin to apply the end of the Roller under the ſound Arm pit, in the outer Part of it, and aſcend forwards croſſing the Neck; after which you run it from behind forwards under the Arm-pit, making a Croſs called *Chiaſte* or X, directly upon the tip (or *Acromion*) of the Shoulder. At every *Chi* or Croſs you are to put a Pin. This done, you continue to run the Roller backwards upon the Back, and ſo turn forwards along by the firſt

Cast. Thus continuing to put a Pin at every *Chi*, you run the Roller along upon the former Turns, both before and behind; at last you strike above the hinder Plait, and running forwards cross upon the Shoulder, make a fourth *Chi*. All these Crosses, which we call *Chi*, will form by degrees little *Doloires*. This Bandage is called *Spica*, because it represents the figure of an Ear of Corn; and under the Ear the *Geranium* is formed, which makes a Triangle of the figure of a Crane flying. For the *Geranium* you must make two turns, about two Fingers breadth above the *Spica*, round the Neck of the Arm; so running from before to the hinder Parts, cover the whole *Spica*, and at last repass under the Arm-pit. If you have a mind to make a Sling of the Band or Roller, bend in the Patient's Arm, and run it under his Wrist, so that the Thumb may be a little higher than the Elbow; then run it over the Patient's Shoulder, near the Neck; after that, make a circular round or turn about the Body, and so pass it above the upper Part of the Arms, continuing these turns till the Roller is spent. This is the *Spica* made with a Roller of one Head.

We come next to describe a *Spica*, done with a Roller with two Heads. This Roller must be of the same length and breadth with the former. You begin to apply under the affected Arm-pit, then you rise over the Shoulder, and so cross, making the Head in the right Hand to pass first, when you shift the

Heads

Heads from the one Hand to the other. I intimated, that when we make uſe of a Roller with two Heads, the right Hand muſt always give its Head to the left, and the left to the right. Each of the Heads muſt be turned both before and behind; then you paſs under the ſound Arm-pit, and ſhift Hands in paſſing over the firſt turns. This done, you come to croſs upon the Shoulder, and ſo re-paſs under the Arm-pit, and form the *Spica*, as I ſhewed you with the other Roller. Having made three *Spica's*, you then make the *Geranium*, with the Head that runs forwards, and the Head that runs behind muſt riſe over the affected Shoulder along the Neck. Then having put the Arm into a Scarf or Sling, you re-paſs over the ſame Shoulder from behind forwards, and make a circular Convolution round the Body, in paſſing above the upper Part of the Arm. At laſt you make faſt the Roller where it ends.

The double *Spica* for both Shoulders diſlocated, is made as follows: After having applied the Compreſſes and Cuſhions, as in the other Bandage, you take a Swath-band eight Ells long, and the breadth of five Fingers over, rolled up to two Heads. Beginning under one of the two Arm-pits, you croſs upon the Shoulder, and ſhift Hands, running one Head before, and the other behind. After that you croſs under the other Arm-pit, and then riſe above the other Shoulder, and croſſing, form

form three ſmall *Doloires* at the upper Part of the Arm of each Shoulder, as you did in the *Spica* for one Shoulder; and under the *Spica* of each Side, you muſt make the *Geranium* by two turns of the Roller round the Neck of the Arm, run from each of the Heads that make the *Spica.* This done, you make a circular Convolution from each Head round the Body, and with two Napkins make Slings for the two Arms.

CHAP. X.

Of the Fracture of the Shoulder-Blade.

HAving thus ſhewn the diſtinguiſhing Signs of the Luxation of the *Humerus*, or the Bone of the Arm, its flying out of the Cavity of the Shoulder-Blade, and the means for reducing it, together with the moſt neceſſary Remedies, we come to treat of the Fracture that may happen, either in the whole Body, or in the Parts of the Shoulder-Blade. For ſometimes the *Spina* or Ridge may be fractured; ſometimes the tip or extremity called *Acromion*, and ſometimes the Body of the Shoulder-Blade, which is very ſlender, are ſo ſerved. In the Courſe of my Practice I have ſeen the Shoulder-Blade broke into ſeveral Splinters; and if theſe are quite ſeparated and prick the Fleſh, you muſt make an Inciſion, and pull them out; but if they are not quite aſunder, you muſt

muſt keep them cloſe with a Compreſs done over with Glue or black Pitch, applied upon the Fractures; and over that Compreſs you muſt lay a Paſtboard, with a Compreſs four Plaits thick ſewed to it, in order to keep the Bone tight and ſafe. After this Application is duly performed, you muſt make the Bandage called *Etoile*; and let the Fracture be either in one or in both Shoulders, this muſt ſtill be the Bandage. This Bandage is made as a Roller with one Head. If the right Shoulder is fractured, you muſt apply the end of the Roller behind, under the left Arm-pit, and then riſe obliquely over the right Shoulder, moving from the out to the inſide, then re-paſs from the inſide backwards, and ſo make a Croſs upon the firſt turns. 'Tis this Croſs that gives it the Name of *Etoile*, and all the Tracts are marked by vertue of this Croſs, which is backwards; and follow the ſame Convolutions of the Roller, you're to paſs ſtill from the out to the inſide, and from the in to the outſide, croſſing always behind, by which you're to make *Doloires* two Fingers broad, for you muſt cover the whole Shoulder-Blade. At laſt you compleat the Bandage by a circular Convolution round the Body.

CHAP.

CHAP. XI.

Of the Fracture of the Humerus, *or the Bone of the Arm.*

THE Signs of a Fracture in the Bone of the Arm, are evident, even to external View; for if 'tis a compleat Fracture, there will be a faultineſs in the Figure, and the Arm will appear crooked. Beſides, the Senſe of Touching will likewiſe diſcover it, for in handling the Arm a Crack will be heard. In order to reduce, you muſt make an extenſion, and a counter-extenſion; and if the Ends lie one upon another, you muſt make a ſtronger extenſion with ſtrong Liſt. Here there's one Remark to be made that's very neceſſary in the Way of Practice; namely, that in ſetting the Arm, the Patient muſt ſit upon an unarmed Chair, that a Servant may embrace and graſp him under the Arm-pit of the ſound Arm; that another Servant muſt take hold of his Arm, and draw it upwards, without raiſing it; that at the ſame time a third Servant is to pull the Arm downwards towards the Ground; and, in fine, that the Arm muſt never be extended, and that the Elbow muſt always be bent in when you thus draw the Arm. This prepared, the Surgeon muſt make the Conformation, by taking hold of the Arm with the Palms of his two Hands, and adjuſt the Bone by re-inſtating it in its pro-

proper Place. The Apparel muſt all be ready, with the Whites of Eggs beaten up with Oil of Roſes, and a little Vinegar warmed. At the ſame time you muſt have four Swathbands or Rollers, with four longitudinal Compreſſes, one tranſverſal, and two Pieces of Paſt board. The firſt Roller muſt be an Ell and a half long, and two large Inches broad. The ſecond ought to be an Ell and three quarters long, and of the ſame breadth with the firſt: But the length and breadth of the third can't be exactly determined, a Variety ariſing from the difference of Age, and the different bulk and length of the Parts; however, generally Perſons of equal Age require Rollers of equal length and breadth. 'Twas for this Reaſon that *Hippocrates* left all to the Prudence of the Surgeon; and when he ſpoke of the length and breadth of the Rollers, he underſtood it of Perſons of a mature compleat Age, that were arrived at their full Dimenſions. The ſame Rule did he obſerve with reference to every Part of the Body; and I, in Imitation of his Example, give the ſame Caution to young Surgeons, relating to the length and breadth of Bands, computing their Meaſure to be always proportionable to the Dimenſion of each Part. For the Arm the Roller may be an Ell and a half long, and two Inches broad; and when I ſay the Arm, I mean the *Cubitus* as well as the *Humerus*. The Roller for a fractured Shoulder-

Shoulder-Blade ought to be five Ells long, and the breadth of five Fingers broad; for the Leg, two Ells and a half in length, and three Fingers in breadth, that is, relating to the firſt Under-band, and the two Upper-bands; but the ſecond *Hypodeſmis* or Under-band ought to be three Ells long. A Roller for the Thigh ſhould be three Ells long, and four Fingers broad; only the ſecond Band for the Thigh ſhould be three Ells and a quarter long. All this I only deſign for a general Rule, extending to every Part that ſtands in need of Bandages.

Having already deſcribed the length and breadth of the two firſt Bands, for a Fracture in the upper Bone of the Arm, I am now to tell you, that the two other Bands that are proper in this Caſe, muſt be of the ſame length and breadth. But before I come to ſhew the Application of 'em, I muſt give you to know, that as Bones may be fractur'd in ſeveral places, ſo they muſt be rolled up different Ways: For if the great Bone of the Arm be fractured in the lower Part, and the Bone flies off to the inſide, you muſt run the end of the Roller from the out to the inſide, and make three circular Rounds upon the Fracture; after which you riſe upwards by little *Doloires*, till you come under the Arm-pit. With the ſecond Roller you make two Convolutions over the firſt Turns of the Band, then you deſcend under the Elbow, where you make a circular Round,

Round, leaving the Elbow uncovered; after which you re-aſcend, and terminate the ſecond along with the firſt.

Tho' the great Bone of the Arm is rounder, and withal more even than any other Bone, yet there's no danger in applying ſome tranſverſe Compreſs to make it equal all over. After that you apply four longitudinal Compreſſes, four times doubled, about eight Fingers breadth long, and two broad. Theſe longitudinal Compreſſes muſt be laid along the Arm lengthways, leaving a ſmall diſtance between every two of them. Towards the fold of the Elbow they may be a little ſhorter, to avoid Pain. The third Roller is applied to the Fracture with a ſingle Turn, after which it riſes upwards in great *Doloires*, and terminates with the two firſt.

Galen orders four, and would have the fourth to begin on the upper Part, and then deſcend in great Circuits, being applied on the ſame ſide with the two Under-bands. This done, you apply Paſte-boards of a convenient length, about ſix Fingers broad, and of the ſame length with the Compreſſes. Theſe muſt be made faſt with ſmall Ribbons, one in the middle, and one at each end. If the Arm is fractured in the middle, after making three Convolutions round the Fracture, you muſt mount upwards, paſs under the Arm-pit, make a Round about the Body, and continue as above. If the Neck of the Arm, near

near the Head, is broke, you muſt make the *Spica* Bandage: The Succeſs I myſelf have experienced, in the Caſe of a Woman that was fourſcore Years of Age, and not above two Months under Cure.

CHAP. XII.

Of the Fracture of the fore-part of the Arm.

AS the fore-part of the Arm is compoſed of the *Cubitus* and the *Radius*, ſo theſe two Bones, may be either jointly fractured, or one of them only at a time. There is more danger and more Difficulty in the Cure, when they are both broken, upon the account that they are not ſo eaſily kept tight as when only one is fractured; for the one, which remains unbroken, ſuſtains the Arm, and hinders the Muſcles to retire, which they do upon a joint Fracture. The Fracture of the *Radius* is more eaſy to cure than that of the *Cubitus*, becauſe the latter ſerves for a Stay to the former. If both are fractured, you muſt make a greater Extenſion than you do when only one is broken, for then the ſound Bone is a Stay and Prop to the other.

In order to compaſs a due Reduction, you muſt make an Extenſion and Counter-Extenſion; after which, you make the Patient ſit down upon a Chair, or lie in Bed, and order one to take hold of his Elbow with his two Hands,

Hands, graſping it both on the outſide and the inſide, and another to graſp the fore-part of the Arm above the Wriſt with his two Hands. Theſe two Servants are to pull or draw equally, putting the Hand in its natural Poſture, ſo that the Thumb is pointed upwards, and the little Finger to the Ground. After this, the Surgeon comes and makes the Conformation with both his Hands. This done, and the Dreſſings being prepared, you muſt have in readineſs four Rollers, tho' indeed three might ſerve. Theſe muſt be of the ſame length and breadth with thoſe for the upper Arm. If the Fracture is in the lower or middle Part of the Fore-arm, and if one or both the Bones are ſprung to the Inſide, it behoves you to apply the end of the Roller on the outſide, and ſo make three Convolutions, as upon other Fractures. Then you mount upwards in little *Doloires*, the Arm being bended or bowed in, and finiſh or make it faſt above the Elbow, which is left uncovered. The ſecond Roller is to be applied on the ſame ſide with the former, making two Turns round the Fracture, after which you deſcend lower, and then re-aſcend in great *Doloires* to join the firſt Band. After that, you apply tranſverſe Compreſſes, or rather only one of them, that being ſufficient. The way of cutting the Compreſſes is this: Take a Piece of Linen that's twelve Fingers breadth long, and eight broad, fold it lengthways in 3 or 4 gradual Plaits,

ſo that the Plaits do not touch one another. This Compreſs you are to apply to the lower Part of the two Bones, placing the thickeſt Part, where the Plaits fall, down towards the Wriſt. You lay it over the Band to render the fore-part of the Arm equally big and round, to the End that the longitudinal Compreſſes may bear upon an equal Plan, having the ſame length and breadth with that of the Arm. The two ſmall Paſte-boards muſt be applied on the outſide and the inſide, to ſupport the two Bands, being diſtant or ſeparated about the breadth of one Finger both above and below. Theſe you tie on with three ſmall Ribbons, and put the Arm into a Scarf or Sling. You muſt not forget to bend in and extend the Patient's Arm after ten or twelve Days, that the *Callus* is a little firm; and that, for fear of making an *Anchyloſis* in the Articulation of the Elbow, which would hinder it to ſtretch and bend.

CHAP. XIII.

Of the Diſlocation of the Cubit.

HAving thus diſpatched the Diſeaſes relating to the Continuity of the *Cubitus* and the *Radius*, namely, their Fractures, and the Means to reduce them; it remains now to ſet forth thoſe relating to their Contiguity,

ty, *viz.* a Defluxion, an *Anchyloſis*, and a Luxation. The laſt of theſe I mean to demonſtrate exactly; and indeed, we may ſay juſtly, that the Luxation of the Cubit is very hard to be reduced, eſpecially if it be compleat, and the internal Proceſs is got into the place of the external.

The *Cubitus* may be diſlocated four Ways, *viz.* outwards, inwards, upwards and downwards; and of theſe Luxations ſome are compleat, ſome incompleat. The external Diſlocation may happen ſeveral Ways, whether by an over-violent Extenſion, or by a Fall, or by a violent Blow, that makes the external Proceſs rub upon the bottom of its Cavity. In this Caſe the Bone is diſlocated outwards, or to the outſide, and the internal *Coronides* Proceſs ſtands in the Place of the external; the internal being then very low, whereas the external is much raiſed. The moſt certain Sign of an outward Luxation is, when the Arm is ſtreight.

The other compleat Luxation is occaſioned in like manner by ſome great Fall, or by a Fall upon ſomething that's very hard. In this Caſe the Arm is more bended or bowed than it ſhould be, and the internal Proceſs touches the bottom of its Cavity; the Luxation falls out behind the internal *Condylus* of the *Humerus*, or the upper Bone of the Arm, and the external *Coronides* Proceſs is placed in the room of the internal, and th inſide of the Hand

and

and the Wriſt is turned outwards towards the Back. Another very certain Sign is, that the Arm is always folded or bent in.

The incompleat Luxations are two in number, *viz.* one upwards, and one downwards.

To diſtinguiſh theſe two, we muſt remark, that in the firſt we feel an Eminence above, upon the external *Condylus* of the Arm; and in the latter, the two Proceſſes of the *Cubitus* are hooked in between the Proceſs of the Pulley, and the internal *Condylus* of the Arm.

In order to make a compleat external Luxation, you muſt ſet the Patient upon an unarmed Chair of a middling height. If the Luxation is in the right Cubit, a Servant muſt get on the left Side of the Patient, and embrace him; another Servant on the right Side muſt graſp with both his Hands on the upper Part of the *Humerus* or great Bone of the Arm, and a third Servant, placed juſt before him, muſt take hold of the fore-part of the Arm, a little above the Wriſt, and keep both the Arm and the Hand in their natural Poſture. The two firſt Servants muſt pull both upwards and downwards, and the Surgeon takes his Place between the Patient's Legs. If the right Arm is affected, the Surgeon places the bending Part of his left Arm four or five Finger's breadth under the luxated Cubit; then he pulls with all his force from the out to the inſide, and ſo the *Cubitus* is reduced. If the left Arm is affected, the Surgeon places himſelf in like manner

manner on the inſide of it, and with the bend of his right Arm pulls the diſlocated *Cubitus* from the outſide inwards.

To reduce a complete internal Luxation, the Patient muſt be held by two Servants, one having hold of his Body, and the other of the upper Part of his Arm. Then the Surgeon takes the Arm in his left Hand, and graſps the Elbow on the outſide; and with his right Hand takes hold of the Wriſt, and ſo pulls the Arm with both his Hands, from the outſide inwards, raiſing the Cubit forcibly upwards, ſo that the Patient's Hand is placed upon his Shoulder. By this means an internal Luxation is eaſily reduced.

The incomplete Luxations are not ſo hard to ſet. When the Eminence of the Elbow riſes upwards above the Pulley, then you muſt puſh from above downwards; and if 'tis hooked in under the Side of the Pulley, you muſt puſh that Eminence from below upwards, and that with greater Force, becauſe the Side of the Pulley is higher below than above. At the ſame time you muſt not forget the neceſſary Extenſion.

Every time you dreſs the Patient, make him bend and extend his Arm, for fear of an *Anchyloſis* in the Cavity. As for the Dreſſings, cut your Plaiſter and Compreſſes in this Faſhion. Take a Rag about ſixteen Finger's Breadth long, and ſix broad, fold it lengthways, and then upon the Breadth, into four Double; and cut it ſloping, running along by the Pla s to the four Ends, and then leave three Fingers

of the Cloth whole. As for the ſingle Cloth that is firſt applied, you muſt cut it like the Compreſs, and cover it with a Defenſative, and apply it partly to the Cubit, and partly to the upper Arm: And the Compreſs ſteeped in warmed *Oxycrate*, muſt be applied ſo as to fit the Cubit and the Arm.

The moſt proper Bandage is the *Doloire*, which is made of a Roller with one Head, about five Ells long, and two Inches broad, applied to the lower Part of the *Humerus*, and then run in two Rounds or circular Convolutions about the Arm, in order to deſcend by the Elbow. After that it makes two circular Rounds about the upper Part of the Cubit, and ſo paſſes to the inſide of the Elbow, or bend of the Arm. Then it re-paſſes upon the inferior Part of the *Humerus*, or great Bone of the Arm, in making two little *Doloires* from above downwards, and from below upwards, till the whole Elbow or Cubit is covered. At laſt it riſes in *Doloires* along the Arm to the Armpit, and concludes in a round or two about the Body.

CHAP. XIV.

The Bandage for Phlebotomy *in the Arm.*

THE Bandage for Blooding in the Arm is made with a Fillet of the Breadth of two Fingers, and long in proportion to the Arm. When

When you tie up the right Arm, you take the Fillet in your right Hand, holding it with your Thumb, your Fore-finger and your Middle-finger; and with the two other Fingers you keep faſt the End of the Fillet, which ought to hang about half a quarter under the Little-finger. Then you muſt join the Lips of the Oriſice with the Fore-finger and the Middle-finger of the left Hand; after which, folding the two other Fingers, you puſh with the End of your Fore-finger the Lip of the Orifice from the outſide inwards; and with the Tip of the Middle-finger you draw the Skin from the inſide outwards. This done, you apply the Compreſs with your right Hand, and hold it on with the Fore and Middle-finger of the left Hand. Then you put your Thumb behind the Elbow, holding your other two Fingers folded; and with your right Hand you place the Fillet upon the Compreſs with two Fingers, at the ſame time that the Thumb of the ſame Hand ſtays upon the Elbow: Then with the left Hand a little raiſed you make the Bandage, by taking hold of the Fillet that hangs on the inſide, and pulling it from within outwards above the Elbow; then paſſing it over the Compreſs by lifting the two Fingers one after another. This done, you draw the Fillet above the Elbow, from the inſide outwards, in order to make two or three Rounds upon the Orifice: And with the End of the Fillet held in the right Hand, you make a *Renverſe*, at laſt tie the two Ends together behind the Elbow.

CHAP. XV.

Of the Bandage for an Aneuriſma.

THE Bandage for the Operation of the *Aneuriſma* (or Dilatation or Rupture of the Arteries) is made with a Fillet ſix Ells long, and two Inches broad: But ſtill you're to obſerve, that when we fix a Meaſure, we only mean it of the Generality and common Size of Men; for in particular Caſes regard muſt be had to the Age and Size of the Body. Before you apply the Fillet, you muſt apply a round Compreſs of four Doubles, and lay above that two other Compreſſes made croſs-ways, being a quarter and a half long, and of the Breadth of three Fingers. The Fillet being rolled up to a round Ball, you take it in your right Hand, and place the End of it above the Elbow; then you run it over the Compreſſes that lie in croſs-faſhion, and ſo conduct up and down in forming little *Doloires* both above and below, after having made ſeveral Turns within the bend of the Elbow. This done, it mounts upwards along the Arm in *Doloires*; and at laſt you put a Compreſs eight Plaits thick near the Armpit, and after covering it with ſeveral Convolutions, you terminate in a round about the Body.

CHAP. XVI.

Of the Diſlocation of the Wriſt.

THE Wriſt is compoſed of eight Bones, drawn up in two Rows, four a-breaſt. Three of the Bones of the firſt Row are received in a double Cavity in the lower Part of the *Radius*; and the fourth, which is under the Bone that ſuſtains the Little-finger, is not articulated. The Bones of the ſecond Row are articulated by their lower Parts, with the upper Parts of the *Metacarpus*. Commonly theſe Bones are not diſlocated but in the upper Part, when they depart from the Cavity of the *Radius*; and this may come to paſs inwards, outwards, and ſideways. When they are diſlocated to the inſide, the Hand falls backwards, and if the Luxation runs outwards, the Hand bends inwards. When the Diſlocation is ſideways, the Hand turns ſometimes to the Little-finger, and ſometimes to the Thumb.

Having thus laid down the Signs of a Luxation of the Wriſt, we come now to ſhew how to ſet and reduce it: For which End, a Servant muſt take hold of the Cubit of the Patient above the Wriſt, and draw it. The inſide of the Patient's Hand muſt be ſpread upon a Table, drawing every Finger one after another to reduce the Tendons to their natural Situation. Then the Surgeon is to preſs the Eminence with the Palms of his two Hands from above downwards. The ſame is the

Method if the Luxation be on the inſide. If the Luxation is lateral, a Servant muſt take hold of the Arm by the lower *Cubitus*, upon which the Surgeon takes the Hand, and ſets it right in making it turn to the Side that's oppoſite to the Eminence.

Having thus ſet the Wriſt, you are to tie with three Fillets, each of them two Ells long, and two Inches broad. Before you make the Bandage, it behoves you to apply a ſingle Rag about ten Fingers Breadth long, and as broad as the Wriſt; and above that a Compreſs of four Doubles of the ſame Length and Breadth. The ſingle Rag muſt be ſteeped in Vinegar and Water, and covered with a Defenſative made of the Whites of Eggs and Oil of Roſes. You apply the Rag thus prepared in a circular way, round the Wriſt, and lay the Compreſs above it after 'tis likewiſe ſteeped in Vinegar and Water. If the Diſlocation is on the inſide, you muſt run the firſt Caſt of the Fillet from the out to the inſide, and then make two Rounds upon the diſlocated Part; after that you deſcend obliquely upon the Hand forming ſmall *Doloires*; then paſſing between the Thumb and the Fore-finger, along the inſide of the Hand, you come to croſs upon the Wriſt, and ſo aſcend upwards by *Doloires*: The Arm being bended in, you come at laſt to make faſt above the Elbow with two or three Rounds, leaving the Elbow uncovered. The ſecond Fillet runs the ſame Courſe; that is,

is, it paſſes by the inſide of the Hand like the other, and terminates in the lower Part of the great Bone of the Arm, leaving the Elbow bare. The third muſt be applied over two Paſt-boards, guarded with their Compreſſes in which they are ſewed. Theſe Paſt-boards muſt be about ſix Fingers Breadth long, and as broad as the Wriſt, one of them being laid on the inſide, and another on the outſide of the Wriſt. With this Fillet make two turns about the Joint, and, without running it between the Thumb and Fore-finger carry it upwards in *Doloires*, and terminate with the former two, leaving the Elbow bare.

CHAP. XVII.

Of the Diſlocation of the Carpus, Metacarpus, *and Fingers.*

THE Bones of the *Carpus* are more apt to relaxate than to ſuffer Luxation. But if any of theſe Bones be diſlocated, you feel a ſort of Cavity on the outſide, and an Eminence or Riſing on the inſide. This Luxation is redreſſed after the ſame manner with that of the Wriſt, by placing the Hand upon a Table, and making a Preſſure upon the Eminence.

All the three *Phalanges* or Ranks of the Thumb may ſuffer Luxation, and theſe Luxations are ſometimes very eaſy, and ſometimes very hard to reduce. Not long ago, I had to do with a Luxation of the middle Row of

the Thumb of a Boy, that gave me a great deal of Trouble. When I came to ſee it I found the Thumb quite incurvated, and very much ſhortned, and the Extremity of the middle Bone advanced very far in the inſide of his Hand under the *Thenar* Muſcle. In order to ſet it, I placed his Hand upon the Table, and applied two *Carqueſian* Nooſes, one to the Wriſt, and another upon the middle of the affected Bone, the former being ſtronger than the latter. This done, I turned over his Hand upon the Table, and ordered the Nooſe to be pulled by two Servants, obſerving all the while carefully, that a due Reduction requires Retenſion, Extenſion, and Impulſion, which I regularly put in Execution, or elſe I had never compaſſed my End. The Nooſe I put upon the Wriſt, was only to keep the Hand firm, and to make the Back of the Hand bear ſtrongly upon the Table. The other Servant pulled the other Nooſe with all his Force, and I in like manner applied all my Force in making the Impulſion with my two Thumbs.

Thus did I reduce it, but with a great deal of Trouble. After ſetting it, I made a Bandage with a Fillet about an Ell long, and after making three Rounds about the Wriſt, I carried it down to the Extremity of the Thumb, and back again in ſmall *Doloires*, in order to make a *Chiaſte* (or Croſs) upon the Joint of the Thumb. At laſt I made a circular Convolution round the Wriſt; and in eight or ten Days time

time the Patient made uſe of his Thumb.

Of the four Bones of the *Metacarpus*, thoſe in the middle ſuffer Luxation both inwards and outwards, but not ſideways: But thoſe which ſupport the fore Finger and the little Finger, undergo Luxation all the three Ways.

All the Bones of the Fingers may undergo Luxation inwards, outwards and ſideways, and are reduced upon a Table, like thoſe of the Wriſt by making an Extenſion, and a Preſſure upon the Eminences, as above. For the Bandage we make a half *Gantlet* (deſcribed elſewhere) which ſerves for all the Joints of the Finger. The Fillet ſhould be three Ells long, and an Inch broad, and rolled up to a Head. If the Luxation affords three or four Joints of the inferiour Parts of the Bones of the Fingers, you muſt make the half *Gantlet* a whole one, by beginning to apply the Fillet on the outſide of the Wriſt, and running it towards the inſide of the Hand. Then you paſs it between the Thumb and the fore Finger, from within outwards; after that you make a Croſs upon the Article or Joint of the Thumb, and paſſing along the outſide of the Hand, return by the inſide to the outſide again, running between the Thumb and the fore Finger, and ſo make a *Chi* (or Croſs) upon the Joint of the fore Finger. Thus you continue the ſame Turns or Convolutions, and croſs upon all the firſt Joints of the Fingers, and after all, terminate in two Rounds about the firſt. If

only one Bone of any Finger is diſlocated, you muſt make the *Chiaſte*, as in the Bandage of the Thumb.

CHAP. XVIII.

Of the Fractures of the Carpus, Metacarpus, *and Fingers.*

THE Bones of the *Carpus* are ſeldom fractured, unleſs it be by very violent Blows; but thoſe of the *Metacarpus* and the Fingers are eaſily broken. To reduce them, you muſt place the Hand upon a Table, and order a Servant to pull the Wriſt upwards: The Hand being thus ſupported, you muſt pull all the Fingers, one after another, in order to reſtore the Tendons to their primitive Situation.

The Bandage of the *Metacarpus* is made with a Fillet two Ells long, and two Fingers broad, rolled up to a Head. With this you make two or three turns round the Wriſt; then deſcending obliquely, making two *Doloires*, and paſſing from the inſide to the outſide of the Hand, you afterward run the Fillet betwixt the Thumb and the fore Finger, and make a ſmall *Doloire* above the Hand. After that, you run from the out to the inſide of the Hand, and form another ſmall *Doloire*, to be three times repeated, ſo as to make a *Spica*. Upon the *Metacarpus* you muſt lay a Compreſs, with its Paſtboard ſewed together, there being in the Paſtboard

and

and Compreſs a Notch or Hollow cut betwixt the Thumb and fore Finger. This Compreſs is to be laid over the firſt turn of the Fillet, and with the remainder of the Fillet you make two *Convolutions* of a *Spica*, paſſing as in the firſt *Convolution*, between the Thumb and fore-Finger: Then you re-aſcend to the Wriſt, after making two turns to cover the *Spica*; and when you are at the Wriſt, you make faſt the Fillet with two circular Rounds, and after all hang the Arm in a Sling.

If the Thumb is fractured, you muſt tie it with a Band or Fillet an Ell and a half long, and of the breadth of one Finger. After making two turns round the Wriſt, to fix the Fillet, you muſt obliquely roll the Thumb, having firſt laid upon the Fracture a little Compreſs ſteeped in a convenient Liquor. This done, you make three ſmall turns round the Fracture, obſerving the ſame Courſe upon the two *Phalanges*, if two Bones be fractured. After this, you apply four little Compreſſes, the breadth of the Thumb, to be laid conveniently one againſt another, with two ſmall Paſtboards of the ſame length and breadth with the Thumb, one to be applied on the outſide, and the other on the inſide. With the remainder of the Band or Fillet you are to cover the Compreſſes and Paſtboards in little *Doloires*, mounting upwards; then make a *Chi* upon the Joynt of the Thumb, and at laſt circulate round the Wriſt.

If only one Row of one Finger is fractured, you muſt tie it tight and ſtrait, and by it ſelf: If two Rows are fractured, you muſt tie it up with another Finger, keeping them both ſtrait. If the firſt four *Phalanxes*, or thoſe of the middle are broken, you muſt bend or fold the Hand, and the Fingers reſting one upon another, muſt be tied with a Fillet an Inch broad, and three Ells long, making two or three *Convolutions* at the Wriſt, from the inſide outward, croſſing on the external Part of the Wriſt, then paſſing to the inſide of the Hand, near the Thumb, and above the four folded Fingers, juſt by the juncture of the *Metacarpus*, leaving the four Knuckles uncovered, you make three circular Rounds about the Fracture, and at laſt deſcend *to the points of the Fingers* in little *Doloires*.

After having rolled up the four Fingers thus bent, and reſting with their Ends equal to one another, you're to apply in the inſide of the Hand a Compreſs, with a Paſtboard of the ſame length and breadth with the Hand, including the Wriſt, and made a little narrower towards the *Carpus*. The Compreſs thus applied along the inſide of the Hand, from the tips of the Fingers to the Wriſt, muſt be afterwards made faſt by the ſame Roller, beginning to roll from the ends of the Fingers, and re-aſcending in *Doloires*. In this Courſe the Roller muſt cover all the other *Convolutions*, and then repaſs between the Thumb and the foreFinger, after which 'tis faſtened at the Wriſt.

CHAP. XIX.

Of the Bandage of the Salvatella.

TO the Deſcription of the Diſorders of the Arm and Hand, I ſubjoin, by way of *Concluſion*, thoſe of the *Salvatella*, as being a Retainer to the Hand. Some pretend, that the opening of the Vein that lies between the little Finger and the *Medicus*, is a ſovereign Remedy againſt a *Quartan Ague*. Perhaps ſome may have found it ſucceſsful; but, for my own ſhare, I tried it upon my ſelf for a *Quartan Fever*, and found no Benefit by it. However, if there be Occaſion to open it, you muſt know, the proper Bandage is done with a Fillet an Ell and a half long, and two little Fingers broad. But before you make the Bandage, you muſt perform the Venæſection, by putting the Hand into hot Water, caſting a Ligature upon the *Wriſt*, and ſtopping the Vein with your *Thumb*. After the Detraction of the Blood, apply a Compreſs upon the Orifice, and if it be the right Arm, lay with your left Hand a Fillet over the Compreſs, leaving one end of it to hang down under the little Finger, and with the other end you're to croſs upon the end that hangs down, and upon the Compreſs. This done, you paſs to the upper Part of the Hand, between the fore and the middle Finger, and then make a turn upon the ring Finger, and after that a Croſs upon the Root of the ſame Finger,

Finger, from within outwards; next paſs under the little Finger, from the out to the inſide, pulling the Fillet under the inner Part of the Thumb: With the End that hangs down under the little Finger you are to make a *Renverſe* above the Compreſs, and at laſt tie this End to the other that's under the Thumb.

CHAP. XX.

Of the Fracture of the Sternum.

A Fracture of the *Sternum* or *Breaſt Bone*, diſcovers it ſelf by theſe Signs: In the firſt place you'll have an Unevenneſs and Inequality in the fractured Part. Secondly, it yields to your Finger when you touch it; and, thirdly, you'll hear a cracking Noiſe, and when you thruſt it down you'll perceive a Cavity, and at the ſame time the Patient is extreamly pained in that Part, and troubled with a difficulty of Breathing, by reaſon the *Pleura*, the *Mediaſtinum*, and the *Lungs* are preſſed, upon which occaſion he ſpits or hawks up Blood. For the Reduction of the Breaſt Bone, you muſt lay the Patient on his Back, on a Quilt, or ſome coarſe Coverlet, with ſomething that's hard underneath, ſuch as a Kettle, a Jar, a piece of Stone, or the like. This done, the Surgeon comes, and with his two Hands preſſes as much as he can the two anterior and lateral Extremities of the Ribs, from above downwards,

wards, by which means he raiſes the Splinters or Pieces of the *Sternum* upwards. On ſuch Occaſions you muſt bleed the Patient as much as is neceſſary, and obſerve a very exact Regimen. The proper Bandage of the *Sternum* is the *Quadriga*, which ſignifies four Croſſes, or four X's, which Croſſes are placed at each Shoulder, both before and behind. If there be a Contuſion along with the Fracture, ſteep the Compreſſes in *Wine*, wherein *Roſes* and *Wormwood* have been boiled. The Compreſſes muſt be doubled four times, twelve Fingers breadth long, and eight broad. Their Figure muſt be triangular, and the Point downwards, in the form of a Hanger. After the Application of the firſt Compreſs ſteeped in *Aromatick Wine* hot, if there be an Inflammation, you muſt make uſe of a Defenſative made of the Whites of Eggs beat up with a little Vinegar. Next to the firſt Compreſſes, is a Paſtboard of the ſame Figure with the Compreſs, having a Compreſs ſewed with it.

The Bandage is made of a Fillet or Roller with two Heads, five Ells long, and four Fingers broad. You begin the Roller under the Arm-pit, then aſcend and croſs upon the Shoulder, then paſſing juſt upon the Neck, you conduct the two Heads, one before, and the other behind, under the Arm-pit. This done, you croſs and direct each Head, one before and the other behind, to the other Arm-pit, grazing in the Paſſage near the Neck; at laſt you terminate

nate in a circular Turn, if so be that nothing but the *Sternum* is hurt: But if any of the upper Ribs partakes of the Fracture, you must make the *Thorax*, which is nothing but turning the Fillet to each Side, by making *Doloires* from above downwards, and after a sufficient Number of *Convolutions* round the Breast, making two or three circular Rounds above the Hips.

CHAP. XXI.

Of the Fracture of the Ribs.

AS we have two Sorts of Ribs, so these may be broken different Ways. The long or true Ribs are all over bony, and may be fractured in any Part; but the spurious Ribs being cartilaginous before, and bony behind, receive Fractures behind, and commonly bend forwards, so that all the Ribs may break outwards; but forwards and inwards they are sometimes not broken, but only bent and split. 'Tis possible likewise that they may be broke and split inwards; in which Case the Splinters press and gall the *Pleura*, and the Danger is great: But if the Rib is simply fractured, and the *Pleura* is not rent, nor much pressed or loaded, *Hippocrates* says, there's no danger; and in such Cases advises to eat much, on pretence that the Belly, when moderately full, restores the natural Posture of the Ribs; whereas when 'tis empty they want that Support.

port. 'Tis the ſpurious Ribs chiefly that are relieved when the Belly is full.

The Fractures of the Ribs are eaſily diſtinguiſhed. If the Fracture falls outwards, in handling 'em one after another you'll hear a cracking. But if the Pain is very great, and the Patient very fat and corpulent, this Sign is not ſo eaſily perceived. A Rib fractured to the outſide may be cured in 25 Days; but if the Fracture is inwards, the Patient feels a violent Pain, we call *Pungitive* or *Pricking*, and which is much more violent than that of a *Pleuriſie*. He has great difficulty in breathing, and perpetually ſpits Blood; in which Caſe 'tis neceſſary to adminiſter the Remedies with the earlieſt Expedition. But the greateſt difficulty of all, is when the Splinter is ſunk in the inſide, for then 'tis a very hard Matter to raiſe it. *Paræus* propoſes a Remedy of *Roſin*, *black Pitch* and *Oatmeal*, with *Maſtich* and *Aloe*, all melted, mix'd, run upon a new Cloth, and ſo applied to the Fracture. This muſt lie on for ſome time, after which you ſnatch it off with great force, bending upwards; and this you continue to do ſeveral times, till the Patient finds relief, which you'll perceive by his breathing more freely; But if the Symptoms continue, *viz.* an exquiſite *Pain*, a *Fever*, a *Cough*, and a *ſpitting Blood*, you will then be forced to make an Inciſion upon the Rib, and raiſe the Splinters with Hooks, and with your Inciſion-nippers cut off the ſharp Points that gall ſo much. All this muſt

muſt be accompanied with the general Remedies, and a good Regimen.

For a due Reduction of Ribs fractured outwards, you muſt hold the Patient upright, and the Surgeon embracing him by the Side, muſt make them bend or lean to the ſound Side, and blow thro' a Horn in the Hand of the ſound Side, after which he makes the Extenſion and Counter-extenſion with his Hands upon the fractured Side, pulling with each Hand the Ribs towards him: By this means the Splinters will re-unite, and the Bones thus reduced muſt be kept up to the Reduction by the common Bandage, called the *Napkin*. This takes place when only one Rib is broken; but if ſeveral Ribs, and thoſe of the ſuperior Claſs, are broken (which I have oftentimes ſeen) then the *Napkin* will not do.

But before I go further, I am obliged to deſcribe the Apparel or Dreſſings of a ſingle Fracture of a Rib.

When any Accident accompanies the Fracture, the Bandage is made with a Napkin four times doubled, if the Fracture is high, and three times if it be in the middle of the Breaſt, or in Proportion to the Age and Size of the Patient. The Napkin thus folded, muſt be rolled up to two Heads. This done, you beat up two or three *Whites of Eggs* with a little *Oil of Roſes*, and a ſmall quantity of *Vinegar*; and making it moderately hot in Summer, and very hot in Winter, ſteep in it five Linen Compreſſes,

ſes, all of four doubles, four of which Compreſſes ſhould be as long as the Ribs, and two Fingers broad; and the fifth ought to be a little longer than the reſt, and of the breadth of ten Fingers. The Application is in this manner: The two firſt are laid ſideways, according to the length of the Ribs, ſo as to touch one another; over theſe you lay the other two, in the form of a St. *Andrew's* Croſs, and the great Compreſs above all. And if 2 or 3 Ribs are broken, the ſame number of Compreſſes will ſerve, only they muſt be larger. If the Patient coughs violently, 'twill be proper to apply two Compreſſes ſtrengthened with Paſteboard, and lay them croſs-ways (like the former two) over the Linen Compreſſes.

The Napkin being rolled as I directed above, you hold it in both your Hands, and lay it even or equally upon the Compreſſes. After that, you put a Scapulary to the Neck, and then turn the Roller equally, by making circular *Convolutions* round the Breaſt, ſuſtained by the Scapulary both before and behind; then you make one end of the Swathe paſs over the other, and at laſt make it faſt with Pins in the middle and two ſides of its Extremity, or elſe ſew it, to hinder its going downwards. If the Fracture affects two or three Ribs, you muſt make a ſtrong firm Bandage, ſuch as the *Quadriga*, which I deſcribed above for the Fracture of the *Sternum*.

CHAP.

ALBERT MILITARY BOOK CLUB

CHAP. XXII.

Of the Luxation of the Ribs.

If the Ribs ſuffer Luxation to the outſide, you'll perceive a Cavity on one ſide, and a ſmall Eminence on the other; beſides, 'tis attended with a Difficulty of Reſpiration, and the Patient can neither bend nor erect his Body; ſo that it calls for a ſpeedy Cure. If the Luxation happens in the upper Parts, you muſt keep the Patient ſtreight and extended, and make him hang by his Hands upon ſome Door or ſome Flier of a Window; after which, the Surgeon muſt, with the Palms of his Hands, preſs the Eminences of the Ribs from without inwards. If the lower Ribs are diſlocated, you muſt make the Patient bend his Body, and clap the Palms of his Hands on his Knees, while the Surgeon puſhes the Ribs as above. The Bandage is the *Quadriga*; only Care muſt be taken to guard the Place whence the Bone ſlipt with proportional Compreſſes, applied lengthways on the tranſverſal Proceſſes of the *Vertebræ*.

CHAP. XXIII.

Of the Fracture of the Vertebræ.

THE Body of the *Vertebræ* may be broken and ſunk inwards, and in regard that the ſpinal Marrow does then endure a Preſſure, it affords but an ugly Prognoſtick, for the Diſeaſe is incurable, and almoſt always mortal: Upon which

which Conſideration I chuſe to paſs over this Diſorder in ſilence, and ſhall now confine my ſelf to the Fractures of the ſpinous Proceſſes.

We diſtinguiſh, that theſe, and not the *Vertebræ*, are broken when no grievous or very troubleſom Symptom attends, and when in puſhing a Finger upon the tip of the Proceſs we feel the Splinter of the Bone move and ſhift its Place, and inſtead of a Fracture, perceive a Cavity with a ſmall Cracking. In this Caſe the Patient feels more Pain in endeavouring to bend his Body than when 'tis erect, by reaſon that, in bending the body, the Skin ſtretches itſelf, which makes the Points of the Bones prick and twitch the Part. If theſe Bones are quite ſeparated from the *Perioſteum*, you muſt make an Inciſion, and take them out. Theſe Fractures are eaſily cured.

To procure the Union of the Bones, and make the Splinters hold, take a ſmall Piece of new Linen covered with Glue, and lay it on the Fracture with a good Linen Compreſs doubled four times above it, and above that a Paſtboard guarded with its Compreſs, and ſewed together, with the *Quadrigæ* Bandage over all. I here omit ſpeaking of the internal Luxation of the *Vertebræ*, by reaſon that it is incurable; and therefore ſhall ſhew by the by, how to reduce a Luxation of the *Vertebræ* in the external Part, and an incompleat Luxation of the Neck, which I have ſometimes met with in my Practice.

CHAP.

MEDICAL BOOK CLUB

CHAP. XXIV.

Of the external Luxation of the Vertebræ.

TO reduce the *Vertebræ* diſlocated in the external Part, you muſt place the Patient on a Table, flat upon his Belly; then take two Fillets, each of them 3 Ells long, and of the breadth of about 8 or 10 Fingers, and run one of 'em over the Hanches, making a ſingle running Nooſe, which a ſtrong and robuſt Servant muſt pull downwards with all his Force; and at the ſame time make another Nooſe over the Shoulders, which another Servant is to pull with all his Force. While the two Servants pull equally, the Surgeon muſt puſh with his two Hands the *Vertebræ* that ſtands moſt out: If he can't perform the Reduction by that means, let him wrap up in Linen two little Sticks of the bigneſs of a Finger, and as long as four Fingers, leſs or more, and apply theſe to the Sides of the *Vertebræ*, making a preſſure upon them. Here he muſt take care not to preſs hard upon the Extremities of the pointed Proceſſes, for fear of breaking them.

When the *Vertebra* is reduced, you'll know it by this, that it is equal to the other neighbouring *Vertebræ*. After the Reduction is performed, you muſt ſuſtain it with two Com-

preſſes of ſix or eight Doubles, each of them 8 Fingers breadth long, and two Inches broad. Each of theſe Compreſſes ſhould be ſtrengthned with a ſmall Plate of Lead much of the ſame length and breadth, ſewed in, and then applied to the lateral Parts of the *Vertebræ*, between the Spinous *Apophyſes*. The Patient muſt lie ſtill as long as ever he can, and the Bandage muſt be the *Quadriga*; of which above.

CHAP. XXV.

Of the Fracture of the Os Sacrum.

THE *Os Sacrum* may ſuffer Fractures in all its Parts. If the Fracture happens in the middle of its *Spina*, 'tis mortal; but in the other Parts 'tis not always ſuch. As we learn from Inſtances in the Army, and in Hoſpitals,

CHAP. XXVI.

Of the Fractures of the Coccyx.

THE *Coccyx* is compoſed of three little Bones, the firſt of which is joined to the *Os Sacrum*; and at the End of theſe little Bones we have a ſmall Cartilage.

To reduce this Fracture, you muſt put two Fingers of the left Hand into the Fundament, (having firſt pared your Nails) and thruſt 'em to the fractured Part, in order to puſh the broken

ken Bones from the inſide outwards; and with the Fingers of the other Hand you are to make the Bone even and equal. The Bandage is made of a Piece of Linen ten Fingers breadth long, and ſix broad, with a Compreſs of the ſame length and breadth. The Piece of Linen and the Compreſs ſhould be ſewed together, and pierced both of them in the middle, and ſewed on the upper ſide to a Fillet that makes circular Convolutions round the Body: Their two lower Corners muſt join two ſmall Swath-bands that are to paſs between the Groins, and return to the fore-ſide, to be made faſt to the Fillet that makes the Rounds. Beſides this Compreſs, there muſt be another with a Paſt-board, ſewed together and perforated in like manner, and (like the firſt) furniſhed on the upper ſide with a Swath, to circulate round the Body; and at the lower, with two little Fillets, that are to paſs in like manner between the Groins, and terminate upon the Fillet that makes the Rounds about the Body. The Fillets and Compreſſes being thus prepared, you begin with the Application of the Piece of Linen of the ſame Figure of the Compreſſes, and perforated in the middle, taking Care that the Hole anſwers the Fundament exactly, and to cover the Linen with a Defenſative before you apply it. Then you apply the Fillet with the Compreſs ſewed to it, and after that the ſecond Compreſs with the Paſtboard, the firſt Compreſs being ſteeped in *aromatick Wine*, if no Acci-

Accident forbids it. This done, you roll the circular Fillets for the Body, and the two Pair of Fillets that paſs between the Groins, both the Compreſſes being ſewed to the one on the upper Side, and to the other on the lower.

The Patient ſhould have under him, as long as he can, a Pan that has a ſoft Roll or Cuſhion prepared for the Purpoſe, till the *Callus* is formed; and if he gets out of his Bed before the *Callus* is made, he ſhould ſeat himſelf upon a perforated Chair, with ſuch a Roll to it.

CHAP. XXVII.

Of ſuch Bandages as are proper for the Diſorders of the Privy Parts.

THE Bandage for the Yard, is a ſimple contentive Bandage, made of a Cloth or Rag laid upon the Yard, with a Compreſs of the ſame Figure, both of them being cut into a half *Cancer*, after this manner: Take a Piece of Linen ten Finger's Breadth long, and ſix broad; fold the Linen firſt in two, then fold it a ſecond time into four, and a third time refold it angular ways. This done, cut the angle Point, which will make a Hole for the Urine to paſs; a Finger's Breadth under the Hole cut the Linen in a ſtreight Line, and at laſt make the Ends even. Thus you have the *Demi-Cancer*, which repreſents a Croſs perforated in the middle.

The Bandage is made with a Band or Fillet about twelve Finger's Breadth long, and about an Inch broad: In the End of the little Fillet you muſt make a Hole, that the other End may paſs through it. The linen Cloth and Compreſs being ſoaked in a proper Liquor, apply them to the Yard, ſo that the little Hole of the Compreſs and the Cloth may come juſt before the End of the Yard. Before you apply the Fillet, you muſt cut the unperforated End in two for the Length of four Finger's Breadth, and the two new-cut Ends muſt be paſſed through the Hole in the other End, ſo as to form a Sort of a Ring; then you roll moderately tight, and in little *Doloires* conduct the Fillet to the Root of the Yard, where you make it faſt, by tying the two Ends together.

A remarkable Obſervation.

NOW I am upon this Subject, I ſhall here take Occaſion to relate the Hiſtory of a *Phimoſis* which happened to a Waterman that brought Salt from *Guivaudan* to *Compeigne*. Being at *Paris*, he ſhewed me his Yard, upon which I ſaw a *Phimoſis* with a very great Inflammation: He could not ſtay to have it dreſſed, but went on board, and was eight or ten Days upon the Water without having it dreſſed, after which time he came again to me. In the mean time the *Gangrene* had over-run all the Nut and Prepuce for a Finger's Breadth. Immediately

mediately I ordered him to Bed, and after making him obſerve an exact Regimen, feed on Broths and Decoctions, and confined him to Water for his only Drink, by reaſon his Fever was very high, I found him a little altered; upon which I ſet about redreſſing the moſt urgent Evil, and begun to make Inciſions along the Glans and Prepuce. The Inciſions being made, I applied to them *Ægyptiacum* diluted in good *Spirit of Wine*, with a little *common Sale* and *Venice Treacle*. With Rags dipt in this Liquor I bathed the Part for half a quarter of an Hour, as hot as he could ſuffer it. I likewiſe ſoaked my Compreſſes in the ſame Liquor, and made the Bandage deſcribed above. He was blooded twice or thrice a Day. The firſt Inciſions were made about two in the Afternoon on *Friday*, and in making them I run about two Lines into the Quick: About ſix that Night I took off the Dreſſings, and found the *Gangrene* had ſurmounted and covered the Inciſions. At eleven a Clock that Night I opened the Dreſſings again, and made Inciſions afreſh, ſtriking to the Quick. On *Saturday* Morning, at five a Clock, I perceived the *Gangrene* ſtill gained Ground, and it continued to encreaſe till *Monday* at two in the Afternoon, that it ſtop'd. I may ſay, without ſtretching, in the whole Courſe of my Life I never ſmelt ſuch a noiſom ſtink; and in the Inn where he lodged he was obliged to ſhift his Room three or four times, for no Body could come near the Houſe where

he was: And as for myſelf, who loſt my Reſt for three Days and three Nights that I attended him, almoſt always my Mouth and Noſe were ſo infected with the Stink, that I was obliged to be often uſing Spirit of Wine, to waſh my Mouth and Noſe, and expel the Malignity that ſtill haunted me. This Gangrene carried off half his Yard, and the whole Subſtance and Body of the Glans, ſo much being putrified with the Corruption. In proceſs of time he was very well cured, and after Cicatrization, conſidering 'twas ſtill cold Weather, inſtead of a ſingle *Suſpenſorium*, I made him a Bag for his Yard of Lamb-skin, lined with the Wool, in order to recal the natural Heat.

CHAP. XXVIII.

Of the Bandages proper for the Diſorders of the Fundament *and adjacent Parts.*

THE Bandage for a *Fiſtula* in the *Anus* is the ſame with that for a *Fracture* of the *Coccyx*.

The Bandage for *Lithotomy*, or Cutting of the Stone, made uſe of in the *Hotel de Dieu* at *Paris*, is a Sling with four Heads, made of a Piece of Cloth an Ell and half long, and four Fingers broad. To cut it, they fold it in two, and ſo cut through from the End, leaving about the Breadth of ten Fingers uncut. This Bandage

dage is aſſiſted by a *Demi-Scapulary*, which in that Hoſpital is called *le Collier de Miſere*. The *Demi-Scapulary* is made of a Fillet three quarters of an Ell long, and two Inches broad, folded in two, cut at the two Ends, and put round the Patient's Neck: Then you take the Sling with four Tails, and having firſt laid upon the Ulcer of the *Perinæum* little Compreſſes of four Doubles, in the Form of a Half-moon, you lay over it the uncut Part of the Band, and taking each of the Tails of the upper Side, conduct them up on each Side, moving from the in to the outſide, and make them faſt behind the Back to the *Demi-Scapulary* that hangs down from the Neck. The Tails of the lower Side you paſs between the Thighs, and moving from without inwards, make them faſt before to the *Collier de Miſere*, above the Knots of the former Tails. Such is the moſt proper Bandage for *Lithotomy*.

The Bandage for the *Scrotum* is the *Suſpenſorium*, *viz.* Take a Piece of Linen twelve Finger's Breadth long, and equally broad, fold it in two, and cut it in the Form of a Mask, leaving the upper Part ſquare, and cutting one of the Sides in the Form of a Semicircle, running ſtill narrower and narrower, till you end in a Point; then cut this Point obliquely on the Side of the Fold of the Linen, from without inwards, for about two Inches long: This done, join the two Points, and ſew them together, having firſt folded the upper Part of the Linen

to the Breadth of about three Fingers, in ſeveral Folds, running to a ſharp Point, to be cut with Sciſſars, to make a Hole for the Yard. The Body of the Bandage being thus made, you muſt ſew to it four little Fillets about an Inch broad, two above and two below, to be made faſt with Points to a Girdle round the Body.

The contentive Bandage, called *Benveron*, is nothing but half a *Suſpenſorium*. It has only three Ends to be made faſt by, two of which lie above, as in the former, and one below paſſes by the inſide of the Thigh, and is made faſt upon the outſide, with another Point to the Girdle round the Body.

Thus I have finiſhed what relates to the Bandages of the upper Limbs, ſo I now proceed to the lower.

CHAP. XXIX.

Of the Fracture of the Thigh, *whether in the upper Extremity, the middle, or the lower End.*

I Was once deceived in viewing a Thigh-bone fractured near its Neck, under the great *Trochanter*, for I could not diſtinguiſh whether it was a Fracture of a Luxation, by reaſon of the great Inflammation that was about the Thigh; the Perſon being withal of a very large Size, and corpulent. Being loth to truſt

to

to my own Judgment, I conſulted M. *Petit*, a Surgeon; upon which we compared one Thigh with the other, and found them of equal Length, and by reaſon of the great Inflammation, we could not hear any cracking; but the Extremity of the Head of the Bone appeared very high in the inner Part, near the Share-bone: Thus continuing in Doubt whether it was a Fracture or Diſlocation, we concluded to uſe no violent Means, and accordingly made the Bandage called *Spica*, with a Roller done up to one Head that was about five Ells long, and five Fingers broad: We applied four or five triangular Compreſſes of four Doubles, laid one over another; the Plaits were upon the Groin, and one of the lower Angles along the Thigh: Above theſe we laid a Compreſs of eight Doubles, three quarters long. The Compreſſes were ſoaked in hot Wine. The triangular Compreſſes were placed in the Fold of the Groin, and the great Compreſs above them over the Thigh, croſſing the two Heads upon the articulation of the Thigh-Bone with the *Iſchium*. After all, we made the Bandage, which I deſign to deſcribe when I come to ſpeak of the Luxation of the Thigh-bone. Seven or eight Days after, the Bandage broke looſe, and I took off the Dreſſings; then the Inflammation of the Thigh was quite gone, and as I took hold of the Thigh with my two Hands, by the upper and lower End, and made a ſtrong Preſſure, I heard the Cracking of the Bone. Upon

that Diſcovery, to make amends for former Omiſſions, I made the *Spica* Bandage, and the *Geranium*, with four longitudinal Compreſſes, one of which was thicker than the reſt, ſoaked in aromatick Wine, and laid under the Cavity of the Thigh. I applied under the Thigh the Roller with two Heads, and croſſed upon the Joint; then I run it from behind forward above the Hanch, and repaſſed again from before backwards along the firſt Turns of the Roller, moving equally to the Joint. At every Turn of the Roller I formed ſmall *Doloires*, one on the inſide, and another on the outſide of the Thigh; thus continuing as I began, I ſtill carried it from behind forwards, and brought it back to run upon the Thigh, repeating the little *Doloires* three or four times, which formed the *Spica*; and under the *Doloires* I repeated the *Geranium* in two circular Convolutions round the Thigh, croſſing upon the *Spica*, and turning the Heads, one to the inſide, and the other to the outſide; at laſt I conducted the Roller in Rounds about the Body.

Oftentimes the Thigh-bone is fractured in the middle, and ſometimes the Splinters of the Bone lie one upon another: In ſuch Caſes the Hands not being ſtrong enough for the Extenſion that's requiſite, we muſt have recourſe to Gins or Nooſes, one near the Knee, and another by the Groin, the Parts being guarded about with good Compreſſes under the Nooſes, to prevent their galling. Theſe Nooſes muſt

be

be pulled by two Servants with all their force, one pulling upwards, the other downwards, in a ſtreight Line, obſerving carefully that the Thigh is neither raiſed nor lower. The extenſion being thus made by the Servants, the Surgeon gives the Conformation with the Palms of his two Hands, raiſing the Splinters from below upwards, with the two *Thenar* Muſcles under his Thumbs, and the poſterior Parts of the Thigh under the eight Fingers of the two Hands, which he is not to move.

To know if the Extenſion is duly performed, you muſt compare the affected Thigh with the ſound, and when the one Limb is juſt as long as the other, 'tis a ſign the Splinters are diſengaged and united. Things being carried thus far, both the Surgeon and the Servants muſt take care to keep all tight, without giving Way any where, and to keep the Part exactly in the ſame Figure, while a third Servant applies a Piece of Linen of a breadth proportionable to the Thigh, and about eight Fingers long. There being ſuch difference of bulk and ſize, according as the Patient is thin or corpulent, 'tis impoſſible to fix the extent of the Dreſſings to one Standard. As for this Piece of Linen, it muſt be ſo large as to cover all, and the two Ends muſt over-lap an Inch. The Cloth ſhould be dipped in a Defenſive before 'tis applied. After this Application the Surgeon is to make a Bandage with four Fillets or Rollers, the firſt of which ſhould

be four Ells long, and the breadth of four Fingers over. All the Rollers, and all the Compresses, must be soaked in hot *Oxycrate*, or Vinegar and Water. If the fractured Bone leans to the inside, the Surgeon places himself on one Side, and indeed the Outside if he can. If the Fracture is round, you must apply the end of the Roller to the solid Part of the Bone, as I told you in speaking of Fractures of the Arm; and if 'tis oblique, you apply it to the Fracture itself. The Surgeon takes the Fillet well rolled in the right Hand, and unrols it as much as the breadth of six Fingers; then he takes the unrolled end in his left Hand, and holds it firm with his Thumb and his Fingers, resting what is unrolled along his Arm. In this fashion he applies that end to the Fracture, and the whole Security of the Bandage depends upon this first end.

This ought to be minded as a general Rule in the rolling of any Part whatsoever. The Extremity of the Roller being held tight upon the Fracture, you raise with your right Hand that part of it that rested upon the left Arm, placing your Thumb upon the middle of the Roll, and pulling very equally till you have made a Round, and secured the End; then you make a second Round in the same manner, pulling always equally. *Hippocrates* frequently cautions not to make the first Convolutions too tight, and withal advises to make them conformable one to another. And with this

this View we muſt ask the Patient, whether he finds it too tight or too ſlack. After making the ſecond Convolution, you unroll about as much as will go half round the Part; and the Roller being held by the left Hand raiſed, the right Hand then takes it, and holds it in the ſame Poſture without moving, till the left Hand has graſped the Part: This done, the right Hand ſets the Roller a going. After three Convolutions upon the Fracture, you mount upwards with ſmall *Doloires*, forming renverſed turns either on the inſide or the outſide of the Thigh. Thus you aſcend to the Groin, and ſpend the reſt of the Roller in two Rounds about the Body.

The ſecond Band is applied like the firſt, from the outſide to the inſide. After two circular Convolutions upon the Fracture, it deſcends in ſmall *Doloires* and renvers'd Turns, then it paſſes under the Ham, and makes two rounds under the *Rotula*, about the upper Part of the *Tibia*. This done, it re-aſcends to the Groin in *Doloires* a little larger than the former. This ſecond Roller ſhould be as broad as the firſt, and four Ells long. The Part that's thinneſt and falls off, ſhould be bolſtered up with tranſverſal Compreſſes; (of which above.) After the lower Parts are made equal to the upper by theſe tranſverſal Compreſſes, you muſt apply longitudinal Compreſſes ſixteen Fingers breadth long, and the width of four Fingers broad, for a Man of a common ſize.

The third Roller muſt be three Ells long, and applied from the inſide to the outſide, juſt contrary to the former two. It makes a Convolution round the Fracture, and riſes in little *Doloires*, with ſmall Intervals, to the Groin; after which, it gives a round or two about the Body. Theſe three Rollers being thus applied, you're then to clap two Paſtboards on the lateral Parts, one to the inſide, and another on the outſide, all along the Compreſſes, not touching one another, but leaving an interval of a Finger's breadth. Theſe Paſtboards muſt be tied on with three Ribbons, as in the Fracture of the Arm, beginning with the Ribbon in the middle, for the Reaſon mentioned heretofore.

This middle Ribbon you take in one Hand on the outſide of the Thigh, and with the other you make two Rounds one over another; and then make faſt the Ribbon on the external lateral Part. After that you manage the other two Ribbons after the ſame manner. This done, you come to apply the Junks, which muſt be of a length proportionable to the Age of the Perſon.

In preparing the Junks, you muſt obſerve, that they ought to paſs above the breadth of three Fingers under the Ancle. To make them, you muſt have Rye-Chaff, with little Rods of the thickneſs of one's little Finger. Having put the Rods in the Chaff, you take a Fillet or Band that's longer than the Rods, and

and after faſtening it at one End, you ſurround the Chaff and Rods with the reſt, and make faſt at the other End.

As there's a Neceſſity of two Junks, ſo that on the inſide of the Thigh ought not to be ſhorter than the other, and not reach further than the Groin; whereas that on the outſide ſhould go the Breadth of three Fingers above the Hanch.

The Rods thus prepared, muſt be put lengthways in a Piece of linen Cloth, and encompaſſed by it tightly and equally.

To make the Junks ſurer, they ſhould be ſewed in with the Linen from one to the other. For the Thigh, the linen Cloth ſhould be three quarters of an Ell long, and for the Leg half an Ell. The Junks muſt be thus wraped to half the Bigneſs of the Thigh and of the Leg. Under them you muſt put ſix Ribbons, and guard off the Unevenneſs of the inſide with Compreſſes, both on the inſide and the outſide of the Ham, and above the *Gemelli* Muſcles.

In the Courſe of Practice, 'tis of the laſt Conſequence to make all the Parts of an equal thickneſs, and make the Junks bear equally above and below. You muſt put longitudinal Compreſſes of ſeven or eight Doubles on the anterior Parts of the Thigh and Leg, and then guard the Foot with a good Compreſs dipped in *Oxycrate* heated: After which apply a ſole of Paſtboard, with a Ribbon run through the

the middle of it, to receive the Foot, and another Ribbon at the End. This done, a Servant comes and makes a Preſſure upon the middle of the Junks, on each Side, to bring them as near together as may be; and the Surgeon ties the Ribbons, remembring ſtill to begin with the middle Ribbon. The two Ends of the Ribbon that's run through the middle of the Sole, muſt be made faſt at the lateral Parts of the Leg, and the Ribbon at the End muſt be tied to the firſt Ribbon above.

Hippocrates, who forewarns us ſo often of the Danger of making the Bandages either too tight or too ſlack, gives us a certain Sign of the due Tightneſs of the Bandage, *viz.* the Inflammation and riſing Softneſs of the lower Extremity, whether the Foot or the Hand. So that if the Foot is not at all inflamed, you muſt immediately undo the Dreſſings, for fear of a falſe *Callus* that may afterwards be irretrievable, and ſo begin again. If the inferiour Extremities are very much inflamed, and have a hard Tumour upon them, you muſt ſlacken the Rollers; for daily Experience ſhews, that too tight a Bandage is followed oftentimes by a mortal Gangrene, and many other Accidents.

'Tis highly incumbent upon a Surgeon to take Care of this Circumſtance, without being influenced by the Complaints and Cries of the Patient; for ſome Patients make a great deal of Noiſe and Whining for a trifling Pain,

and others are quiet under the heavieſt Diſorders, ſo that no Rule can be taken from the Conduct of the Patient.

Let the Patient cry or roar, or ſay what he pleaſes, this is ſtill a certain Rule, That if the Thigh is right ſet, if no Splinters are out of their Place, and the Bandage is right made, after twenty four Hours, all or the moſt conſiderable Part of the Pain will ceaſe, and no Itching or Pimples diſturb the Patient, which ſometimes are a Preſage of a Gangrene. If things be in this Poſture, without any Sign of an Impoſtume, or the like, do not offer to touch the Fracture or the Bandage till after the ninth or tenth Day. Some do a great deal of Harm by undoing the Bandage too ſoon, to moderate ſome trifling Uneaſineſs. But in one Word, I would adviſe all young Surgeons not to touch the Bandage, unleſs it be too ſtrait, for the Pain and other Accidents proceed commonly from an over-bearing Stricture.

So much for the Fracture of the upper End and middle of the Thigh-bone. As for the lower Part, it may be fractured either to the inſide or to the outſide. If to the inſide, the firſt Caſt of the Roller muſt be made on the outſide, and ſo you go on, obſerving the ſame Progreſs as in the Fracture of the middle of the Thigh-bone. After making three Turns round the Fracture, you aſcend in ſmall *Doloires* and renverſed Turns to the Groin. The ſecond Roller you begin to apply like the firſt,

and

and after two Rounds about the Fracture, conduct it under the Ham, and make a Turn round the upper Part of the *Tibia:* Then leaving the Knee unrolled, you aſcend and terminate at the Groin along with the firſt. This done, you apply the tranſverſal and longitudinal Compreſſes, and complete the Operation with the laſt Roller, which muſt run from the inſide to the outſide, in order to reſtore and re-inſtate the Muſcles. At laſt you apply the Paſtboards, Junks and Sole, as in the Fracture of the middle.

CHAP. XXX.

Of the Luxation of the Thigh-bone *with the* Iſchium.

THE Thigh-bone is diſlocated four ways, namely, inwards, outwards, forward and backward. In the Articulation with the *Iſchium* there happens no incomplete Luxation from external Cauſes, as in the Cubit, the Wriſt, *&c.* by reaſon that its Cavity is round, its Edges high, the Muſcles very ſtrong, and the Head of the very Bone round, ſo that it can't reſt upon the Edges of the Lips of its Cavity; and the Strength of the Muſcles is ſuch, that they will not ſuffer it to reſt part without and part within the Cavity.

Indeed, an incomplete Luxation may happen from internal Cauſes, by vertue of a Relaxation

laxation of the Ligaments, which being drencht by the Moiſture that comes from the Habit of the Body, may inſenſibly ſlacken and extend themſelves.

The Luxations of the Thigh-bone being either internal, external, anterior, or poſterior, I begin with the internal.

The moſt frequent Luxation is that of the internal Part upon the Hole of the Shafe-bone, by reaſon of the hollow Cut in the internal lateral Part of the Cavity of the *Iſchium*.

We know that the Thigh-bone is diſlocated in the internal Part, when the affected Limb is longer than the ſound one, the Knee and the Foot turn outwards, the Patient can't bend his Leg; and in the Region of the Groin we feel the Head of the Bone ſticking. In this Caſe the Leg is longer than at other times, becauſe the Head is not in its Cavity: And as for the Knee and the Foot, their turning outwards, 'tis common to all Bones, that the inferior Parts turn outwards when the Head is luxated to the Inſide.

After thus diſtinguiſhing the internal Luxation, we proceed to the ſetting Part; for which end we order the Patient to be laid upon his Back on a Table or a Bench, with a Hole in it, oppoſite to the Patient's Groin, in which we put a Peg about a Foot long, and half as thick as one's Arm, covered with Linen. This Peg we drive forcibly into the Holes, ſo as to make it firm and tight; ſo that after raiſing the

the Patient's Teſticles, 'twill ſerve to puſh the Bone from the inſide outwards. Under the Peg we have a Nooſe, which aſſiſted by the Peg, draws the Bone from the inſide outwards. At the lower Part of the Thigh we have another Gin or Nooſe applied to the external lateral Part. We run in the Heads of the Nooſes from the outſide inwards, and then pull from the inſide outwards, the Perſon who pulls being always a ſtrong robuſt Man, and placed on the outſide of the Thigh.

The Places upon which the Nooſes are applied muſt be guarded with thick Compreſſes, to prevent their being pain'd. The two Servants being conveniently ſeated, the one above the other, the upper one has the Patient's Head and Shoulders reſting upon his Knees, and againſt his Breaſt, and pulls with his two Hands the two Ends of the Nooſe, one on the inſide, and the other on the outſide: And the other Servant, who ſits below, pulls the two Ends of his Nooſe with yet more force than the other, becauſe the Peg does great Service in puſhing the Bone from the inſide outwards, in order to make it re-enter its Cavity. Theſe two Servants muſt take care to pull both in a ſtrait Line. If it be the right Thigh, the Surgeon forcibly puſhes from the outſide inward with his left Hand, being aſſiſted by the Peg, which is much more effectual than the Surgeon's Hand; then with his right Hand he graſps the Knee below the Nooſe,

and

and puſhes from the outſide inwards. Then he bends the Knee, laying the Leg a-croſs towards the other as much as he can.

This is undoubtedly the beſt Invention for reducing an internal Luxation that's recent; but if the Luxation be of long ſtanding, we muſt have recourſe to Machines, ſeveral of which may be readily made out of hand.

The moſt commodious of 'em all is the Mill made of two Pieces of Wood, with three Holes in each. In the Holes of the two Ends we put a Peg to keep the Boards together; and in the middle Holes we put a Stick about half and Ell long, at the End of which are two little Holes for receiving two Pegs of a moderate bulk, and a Foot long, in the form of a Croſs. This Machine being held firm againſt a Wall, a Servant takes hold of one of the Pegs, and by this means the Nooſe twiſts itſelf round the Stick, and ſo the Extenſion is as ſtrong as can be deſired. In this Method the Servants are placed as above, and all other Circumſtances the ſame.

The Nooſes pulled by the Mill muſt be pull'd downwards in a ſtrait Line, and the Surgeon acts the ſame Part as when no Mill is made uſe of.

This Invention of the Mill I recommend to the *Country Surgeons*, that can't come at the other Machines uſed in great Cities; for in a difficult Luxation all our Deſign is, to make a ſtrong

ſtrong and great Extenſion, which this does very effectually, and very eaſily.

The Bandage proper for this Caſe is already deſcribed, in treating of the Fractures of the Thigh-bone, and ſhall be further view'd after I have ſhewn the *Signs* and the *Reduction* of the remaining three Luxations of the *Thigh-bone.*

The *Signs* of the external Luxation are very different from thoſe of the internal; for in the external the affected Leg is always ſhorter than the ſound one, by reaſon the Head of the Bone is then above the Cavity; beſides that, the extending Muſcles draw towards their Head, and ſo pull the Bone upward. The Knee and Foot turn in this Caſe inward towards the other Leg; and the Heel, which turns outwards, is ſo affected, that the Patient cannot ſtand upon it, and ſo can only reſt on the Ball of his Foot. If this Luxation can't be reduced, in Proceſs of Time it beats out to itſelf a falſe Cavity behind the *Iſchium*; for the Fleſh being frequently and forcibly grated and bruiſed by the Head of the Bone, it becomes callous, and ſerves for a Cavity to the Bone; and in that Caſe the Patient may walk without a Cane, becauſe the Body bears upon a direct Line, which can't be when the Head of the Bone is lodged in the internal Part.

The external Luxation of the *Thigh-bone* is the eaſieſt reduced of 'em all. We lay the Patient upon his Belly, without any ſuch Peg as was ordered for the internal Luxation, and apply

ply two Nooſes, in a different way from thoſe uſed in the internal; for the Nooſe that's above the Knee is applied to the internal, lateral and inferior Part of the Thigh, and pulled upward from the inſide to the outſide, by a ſtrong Extenſion: The Servant that pulls it ſits uppermoſt, with the Patient's Face on his Lap, and draws the Strings upwards.

The ſecond Nooſe is applied to the upper internal Part of the Thigh: One of its Heads paſſes inwards under the Armpit, and the other outwards over the Back, along by the Neck; and the Patient's Arm is extended in a ſtrait Line downwards, and tied by the Wriſt to the Servant's Girdle, the Hand reſting upon his Breech. Two Servants are to pull this, one upwards, and the other downwards.

If the right Thigh is diſlocated, the Surgeon plants himſelf on the left ſide, and with the Palms of his Hands puſhes the Bone from the outſide inward, in Conjuction with the lowermoſt Servant, who pulls his Nooſe with all his force from the inſide outwards, endeavouring to make the Knee turn in towards the other Leg, by pulling the Heel outwards.

If theſe Means are not ſufficient, you muſt have recourſe to Machines.

CHAP.

CHAP. XXXI.

Of the anterior Luxation of the Thigh-bone.

WE know that the Head of the Thigh-bone is ſlipt out on the fore-ſide, when we find the Head of the Bone reſting upon the *Os Pubis*, and a great Tumor in the Groin, the Breech wrinkled and thin, by reaſon of the Contraction of the Muſcles; when the Patient extends his Leg without Pain, but can't bend it towards the Groin, becauſe the anterior Muſcle is ſqueezed by the Head of the Bone, ſo that it can't extend itſelf; when the Patient can't bend his Ham without great Pain; when upon comparing that Leg with the other, we find them equal in length, and the Patient can't ſupport himſelf but upon his Heel. When this Luxation happens, we muſt reduce it betimes, becauſe it cauſes a Suppreſſion of Urine, for that the Parts which convey the Urine to the Bladder are violently preſſed and ſqueezed by the Head of the Bone, and thereupon a great Inflammation enſues.

To accompliſh the Reduction, place the Patient on the ſound ſide, and perform the ſame Extenſion as in the internal Luxation. The Extenſion muſt be directed from without inwards, and ſuitable Endeavours muſt be uſed to make the Head of the Bone return the way it came. To this end apply a hard and round Compreſs

Compreſs on the Head of the Bone, and preſs the Compreſs down with your Knee; then pull the Patient's Knee towards the other Leg, and by obſerving the above-mention'd Extenſions you'll compleat the Reduction.

CHAP. XXXII.

Of the Luxation of the Thigh-bone *in the hinder Part.*

THE poſterior Luxation of the *Thigh-bone* happens but ſeldom, by reaſon the Cavity of the *Iſchium* is very deep on that ſide, whereas on the inner ſide 'tis ſhallower and notched, which makes the internal Luxations more frequent than the other.

The Signs of the poſterior Luxations are theſe: The Patient can neither extend nor bend his Legs, by reaſon the Muſcles that encompaſs the Head of the Bone are extreamly preſſed and extended; the Pain encreaſes violently when he offers to bend the Ham; the affected Leg is much ſhorter than the ſound one; and in feeling or preſſing the Breech, the Head of the Bone is felt to make an Eminence under the Muſcles; a great Softneſs in the Cavity of the Groin is obvious to the Touch; the Heel can't touch the Ground, by reaſon the Head of the Bone lies hid between the Muſcles of the Breech, which draw it upwards, eſpecially the great Muſcle, which undergoes a

greater

greater Preſſure than any of the reſt; (for the ſame reaſon the Patient can't bend the Knee, for in bending it he muſt make a great Extenſion of the upper *Aponeuroſis* of the *Tibia*;) if the Patient ſtrives to ſtand upon the Foot of the diſlocated Limb, without ſomething to ſupport him, he falls backwards, becauſe the Body is not placed in a perpendicular Line over the Bone, ſo that in this Caſe he muſt have a Crutch under the Armpit of the affected ſide.

Such are the Signs of this Luxation. To reduce it, you muſt place the Patient upon a Bank, or a Table covered with a Quilt or ſome other thing.

In the next Place you muſt remember, that the Part where the Bone reſts muſt needs be more prominent than that from whence it dropt. 'Tis likewiſe to be remembered, that if the Patient be a Child or a Woman, we ought not to make violent Extenſions with Nooſes and Machines, for that the Hands of the Surgeon for the moſt part will ſuffice: I ſay, *for the moſt part*, for I do not deny but that ſometimes Luxations happen both in Children and Women, which can't be reduced without Nooſes.

In reducing this ſort of Luxation the Extenſion muſt be more violent than in the other. You muſt puſh the Head of the Thigh-bone with the great *Trochanter* from above downwards in a ſtrait Line, and with great force pull the poſterior Part of the Thigh backward; by which means the Head of the Bone

will re-deſcend the ſame way it came, and ſo ſlip into its Cavity.

Reflections upon the Luxations of the Shoulder *and the* Thigh.

I Dare to ſay, without reflecting on any Practitioner, that of all the Writers upon the *Diſlocation of the Thigh-bone*, not one has taken Notice of that excellent Precept of *Hippocrates*, quoted above, importing, that in all Luxations three things are to be conſidered, *viz.* whence the Bone went, which way it went, and where it ſtops. This *Galen* adviſes us to mind with Attention, that we may avoid the Miſtake of ſome Surgeons in his time, that not only miſſed of the Reduction of the Bones, but turned one Luxation into two. This, ſays *Galen*, proceeded from their Ignorance, in not being acquainted either with the Cavity of the Bone, or its Head, or the way it took in removing from its proper Station, or the Place where it met with a Stay. He adds, That through this Ignorance, inſtead of raiſing the Head of the Shoulder-bone upwards, when 'twas fallen below the Cavity under the Armpit, they violently puſhed the Arm from behind forwards, and ſo diſlocated it a ſecond time in the Fore-part.

I know very well, that whoever is but ſlenderly verſed in *Oſteology*, will avoid ſuch groſs Miſcarriages; but at the ſame time I think it

highly proper to adviſe them always to have in view this Precept of the great Maſter of our Profeſſion, when they are employed upon two famous Luxations of the Shoulder and the Thigh-bone.

The true way of learning to reduce theſe Diſlocations ſucceſsfully, is to do it frequently upon a Skeleton.

To apply this great Precept of *Hippocrates* to the Reduction of the Thigh-bone, which lies now before us. This Bone, as I intimated above, may be diſlocated four ways. In an internal Luxation, the Head of the Bone departs from the Cavity of the *Iſchium*, it takes its Paſſage over the hollow Notch, and ſtops upon the Hole of the Share-bone, the Neck of the Bone reſting on the Notch, and the *Trochanter* poſſeſſing the Cavity of the *Iſchium*.

Now theſe things being duly minded, 'twill be an eaſy matter to ſet the Bone, by making it return the ſame way it paſt, in puſhing the Bone from before backwards, and making it paſs by the ſame Notch. In doing this, we muſt call to mind what *Hippocrates* ſays, That the Neck of the Bone reſts upon the Notch, and to facilitate the Re-entrance of the Bone into its Cavity, it behoves us to puſh the inferiour Part of the Thigh from the outſide to the inſide, by laying the Leg acroſs upon the other Leg; for as the lower End of the Thigh advances forwards, it throws the Head of the Bone behind or backwards.

The

The external Luxation is different from the internal, upon the Account that there the Head of the Bone ſallies out in another Courſe. It gets behind the *Cotyle* or Cavity, and reſts upon the Sinuoſity of the *Iſchium*, between the Tuberoſity and the Verge of its Lip. Now, here it muſt be remarked, that the hinder Side of the Cavity is lower than the other.

In reducing this Luxation, we take Meaſures contrary to thoſe laſt mentioned: Being appriſed that the Head of the Bone departed from its Cavity, ſteering from the inſide outwards by a tranſverſe Line, pointing directly to the Notch of the inner Part.

In this Luxation the Patient is placed upon his Belly, as I intimated above; after which the Servants do their Office, and the Surgeon exerts all his Force in puſhing the Bone with his two Hands on his Knee. He puſhes it from the outſide inwards in a tranſverſe Line, making the lower Part of the Thigh approach from the inſide outwards.

The Diſlocation in the Anterior or Forepart is more uncommon than the former two, by reaſon that the Cavity of the *Iſchium* has higher Sides before, than either on the inſide or outſide. When this Luxation happens, the Head of the Bone ſlips out of its Cavity through a ſmall Notch in the upper Part of the Cavity, and ſteers in a tranſverſe Line over the upper Part of the Share-bone, juſt by the Union of the two Bones.

To make it return the same Way as it went out, we push it from before backwards in a transverse Line, pulling the Nooses both above and below, from the inside outwards. The Patient is laid on his sound Side, as I said before, and the lower Part of the Thigh is pushed with the Knee from the outside to the inside; by which means the Head of the Bone comes to re-enter its Cavity.

The posterior Luxation of the Thigh Bone being more uncommon than any of the rest, I shall add to what I have said before, that I do not meet with any Author that has well explained in what Luxation of the Thigh Bone the round Ligament is broken, and in what Luxations it continues to extend it self.

It must be owned, that this Ligament is very short, as not being above an Inch long; so that it can't remain entire in any Luxation besides the internal, where the side of the Cavity is a little raised. If it subsists entire in this, it must stretch it self to two large Inches; but in the posterior Luxation it must stretch above six, and in the anterior above three. From whence we conclude, that the round Ligament which fastens the Head of the Thigh Bone in its Cavity, can remain entire only in the internal Luxation.

The Luxation of the Thigh Bone requires the same Bandage as was described for the Fracture of the upper Part. The Groin must be defended with four triangular Compresses, one

Angle

Angle of which runs downwards along the Thigh. A great Compreſs three quarters of an Ell long, and three Inches broad, ſhould be laid along the inſide of the Thigh, and come to croſs upon the Articulation. This done, we apply a Roller with two Heads, beginning from the inſide outwards; then croſſing upon the Joint, conduct one of the Heads to the inſide, and the other to the outſide; after which, we return from behind forwards, and croſſing again upon the ſame Part, form ſmall Edgings from above downwards. This done, we repaſs by the inſide of the Thigh, and ſo return to ſteer from the inſide outwards, keeping the ſmall Edging ſo as to form a *Spica*.

Having made three *Spica's* and a half, we muſt then make a *Geranium* or Crane, which is nothing elſe but a ſmall Aperture left under the *Spica's*, by making two circular Rounds about the Neck of the Thigh Bone. This Aperture reſembles a Crane, and ſo gave riſe to the Name. We finiſh the Bandage in covering the *Spica's*, and making circular *Convolutions* round the Body.

CHAP. XXXIII.

Of the Fracture of the Rotula.

THE *Rotula* undergoes Fractures ſeveral Ways, *viz.* lengthways, croſsways, or into ſeveral Pieces, either with or without a Wound.

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When the Fractures run acroſs, the Signs are apparent both upon the Side of the Fracture, and in the failure of the Action of the Part. As to the firſt, there's a void Space in the middle of the Bone, with an apparent hollowneſs.

As for the Action of the Part, the Patient can't extend his Leg, becauſe all the extending Muſcles of the Leg are knit to the *Rotula* by an *Aponeuroſis*; and at the Share-Bone he can't bend it without great Pain.

To reduce it, make the Patient ſit down, and take the Knee in your two Hands, one on the inſide and the other on the outſide, making your Thumbs meet, and with your two fore Fingers and your Thumbs pull down the Skin gradually till the two Ridges approach one another; then make the great Bandage called *Chiaſte*, in the following manner:

Take a ſingle Piece of Linen Cloth, about ten Fingers breadth long, and ſix broad: Soak it in the Whites of Eggs, with Oil of *Roſes*; then lay on a Compreſs of four Doubles, having an Aperture to receive the *Rotula*, with a Compreſs and Paſtboard ſewed together with an Aperture in like manner, and over all a large plain Compreſs. Then make the Bandage with four Fillets, three of which muſt be two Ells long a-piece, and two Inches broad, and the fourth five Ells long, and the breadth of four Fingers over. The firſt three muſt be rolled up with two Heads. The firſt that you apply is called *Lacy*, or Nooſe, and is

is not removed till the Cure is accompliſhed.

You begin the Application above the *Rotula*, and then make a Croſs under the Ham; then returning from behind forwards, you paſs below the *Rotula*, and thus continue to conduct your two Hands or Balls, croſſing on every Side, both within and without, under the Knee, ſo that you leave the *Rotula* uncovered. The other two Fillets are rolled and applied in the very ſame manner with the firſt. In the mean time, to avoid tangling, you muſt always remember to conduct one Head along, before you croſs the other.

You finiſh the Bandage with the fourth Fillet rolled up in one Ball, of the ſame length and breadth with the former three; beginning the Application under the Sole of the Foot, leaving about five or ſix Inches of one end to be made faſt, in rolling upwards with great Edgings and renverſed Turns. When you come at the Ham, under the *Rotula*, you ſtay your Fillet, and above the laſt Turn apply a Paſtboard covered with a thick Compreſs, at leaſt twelve Fingers breadth long, and eight broad. This you lay under the Ham, and keep it on by the ſame Roller, which is then to mount upwards with Edgings or *Doloires* to the Groin.

At laſt you conclude the whole Dreſſing with the Junks, deſcribed above for the Thigh. By this means the Patient may be cured in thirty or forty Days.

I do not know how it comes that *Paræus*, one of the greateſt Practitioners of his time, ſhould affirm, that all thoſe who have had the *Rotula* fractured are lame ever after, notwithſtanding all the Precautions that can be taken.

For my own part, I do aſſure you, I have cured three or four croſs Fractures of the *Rotula* without any ſuch Conſequence; and have ſeen ſeveral ſuch Cures performed by my Brethren.

If the Fracture of the *Rotula* runs lengthways, you muſt make the Uniting Bandage, deſcribed in the beginning of this Treatiſe.

CHAP. XXXIV.

Of the Luxation of the Rotula.

THE *Rotula* may be diſlocated upwards, downwards, inwards and outwards. To reduce it, you muſt hold the Patient upright, ordering ſome robuſt Perſon to embrace him under the Arm-pits. Then the Surgeon puſhes the *Rotula* with the Palms of his two Hands, from above downwards, if the Diſlocation bore upwards; or from below upwards, if it bore down. If the Diſlocation bore to the inſide, he plants his Hands on the two Sides, and puſhes to the outſide; and if it bore to the outſide, he puſhes the contrary Way. The proper Bandage is the *Tortoiſe*, ſo called from its repreſenting the Figure of that Animal.

'Tis

'Tis made with a Fillet four Ells long, and of the breadth of two Fingers, rolled up in one Ball, the ſame Compreſſes with the Aperture being applied as above, without Paſtboard. With the Roller you make two or three turns above the *Rotula*, then two circular *Convolutions* below it; after that, you run it along the middle of the *Rotula*, making an Edging from above downwards; then you deſcend under the *Rotula*, and there making an Edging from below upwards. Thus you continue the Edgings from above downwards, and from below upwards, till the *Rotula* is covered all over. This done, you lay a Paſtboard guarded with a Compreſs under the Arm; and ſo the *Rotula* will knit in thirty Days.

CHAP. XXXV.

Of the Anchyloſis.

SINCE the Diſeaſes of the Joints are related to thoſe of the Bones, of which they ſeem to be a Species, I ſhall here oblige the young Surgeons ſo far as to explain an *Anchyloſis*, which is a Diſorder of the Joints, being nothing elſe but a viſcous and glutinous Moiſture, that inſinuates its ſelf into the Cavity of the Articulations of the Bones, and ſometimes grows as hard as the Bones themſelves.

A very remarkable Obſervation upon the Anchyloſis.

SOME Years ago, during my Attendance at the Hoſpital *de la Charite des Femmes*, I met with a young Girl ten or twelve Years old, that had an *Anchyloſis* in the Joynt of the Knee, occaſioned by a Wound in the internal lateral Part, between the *Condylus* of the *Tibia* and the *Rotula*. The *Anchyloſis* was then of ſeven or eight Months ſtanding, and her Heel was up to her Breech.

M. *Houiller*, my Collegue, thinking there was no hopes of Cure, propoſed only to lay the Plaiſter *de Mucilaginibus* upon it, without troubling our ſelves further in vain. At the end of the Month, upon which the time of our joint Attendance was up, I attempted by my ſelf to redreſs this grievous Diſorder, which all the ableſt Surgeons and Practitioners at *Paris* took to be incurable.

I begun at firſt with emollient and diſcuſſing Remedies; after theſe, I applied ſuch Diſcuſſives as were more penetrating and attenuating, and that for five Months, during which time I dreſſed it twice a Day. After fomenting it for a quarter of an Hour with an emollient Decoction as hot as ſhe could endure it, I bathed it for a conſiderable ſpace of time with a Diſcuſſive as hot as ſhe could poſſibly bear it.

But that which in my Opinion forwarded the Cure moſt, was the Bandage with the Junks, that they make uſe of in a Fracture of the Leg. I began to apply theſe when the Leg was a little extended; for after fomenting the Knee with the Liquors, I took the Leg and the Thigh in my two Hands, and carried the Flexion and Extenſion as the Girl's Strength would allow.

When I made the Bandage, I took a very thin Splent, about an Inch broad, and eight or ten Inches high, and folded it up in a Compreſs of eight Doubles. I placed the middle of this Compreſs under the Ham, ſo that it bore with the two ends upon the Thigh and the Leg; and in regard the Leg was ſtill bended, there was a great void ſpace between the Compreſs and the Ham. Above the Knee I laid another Compreſs of ſeven or eight Doubles, ſtrengthened with a pretty thick Paſtboard. I made my Bandage with a Fillet five Ells long, and two Inches broad. With this I made five or ſix Rounds about the Ham, over the Compreſſes, and then two or three Rounds above, and as many below it; at laſt I ſtayed my Bandage in two or three circular *Convolutions* above the Knee.

You muſt remark by the way, that as I advanced in melting the *Anchyloſis* with my emollient and diſcuſſive Remedies, I ſtill made my Bandage tighter and tighter.

'Tis likewiſe to be remarked, that every

Day, Morning and Evening, I made the Flexion and Extenſion of the Leg with a violent Force: And during all theſe great Motions I heard a Noiſe, which proceeded from the Agitation of the *Condylus's* of the *Tibia* and the Thigh Bone, while the *Anchyloſis* was melting. All this could never paſs without a great deal of Pain, and I lay under a great Neceſſity of looking narrowly after the Strength of this little Girl; for oftentimes after the Torture of my Operation was over, I was obliged to leave her in Repoſe for ſeven or eight Days: But as ſoon as ſhe recruited, I renewed the Flexion and Extenſion, in order to melt down and diſſolve the *Anchyloſis*. In fine, by this means the Girl was perfectly cured, and now walks without the leaſt Lameneſs. I begun in *September*, and finiſhed the Cure by the end of *January*.

CHAP. XXXVI.

Of the Fracture of the Leg, *both* Compleat *and* Incompleat.

WE call a Fracture of the Leg *Compleat* when the two Bones of the Leg are broken quite thro'; and *Incompleat*, when only one of them is broken: But at the ſame time a Fracture may be either *Compleat* or *Incompleat* upon a Part that has only one Bone, as the Shoulder or upper Arm, and the Thigh; in

in which Caſe we call it *Incompleat*, when only a Part or Splinter of the Bone is forced aſunder from the reſt, and the whole Body is not diſunited.

We know that only the *Tibia* is fractured, when the Bone bears to the inſide of the Leg, and is not crooked; for the *Perone* or *Fibula* hinders it from flying outwards. But the Fracture of the *Perone* is commonly more hard to diſtinguiſh, becauſe this Bone is leſs, and makes a leſs cracking Noiſe; beſides that, 'tis covered with more Muſcles than the *Tibia*.

When both the Bones are broken, they turn equally to the inſide and outſide, the foreſide and backſide. Both the Bones fractured, are harder to cure than only one, as I intimated above in the Fracture of the Cubit; for while one Bone ſtands, it ſerves for a Splint and Support to the other.

To reduce the Fracture of the two Bones, when they do not lie one upon t'other, you muſt make no great Extenſion, but be careful of what you're to do before and after the Operation, as well as in the interim.

Before you dreſs the Patient, you muſt have all your Dreſſings and Apparel ready, and two Servants qualified for making the Extenſion and Counter-Extenſion, called by the *Greeks*, *Antiſtaſis*; the Conformation, called by the *Greeks*, *Diaplaſis*, being the Surgeon's Province.

I have

I have already shewn how an Extension must be made equal and unequal with the other Parts. When the two Bones are fractured, and the Ends are at no great distance from one another, you need make no other Extension but with the Hands of two Servants, one of whom claps his left Hand under the Heel, and with his right Hand full spread grasps the Foot, his Thumb being under the Sole of the Foot, and his four Fingers upon the upper Part of the *Tarsus*, while the other Servant grasps the upper Part of the Leg with his two Hands, one on the inside, and t'other on the outside, so placed, that the two Thumbs are upon a level, pursuant to *Hippocrates*'s Precepts.

The two Servants in this Posture are to pull equally in a streight Line, and care must be taken that the Leg is neither too high nor too low. This done, the Surgeon makes the Conformation with the Palms of his two Hands, taking hold of the Leg on each Side, and bearing it up from below upwards with the *Thenar* Muscles that lie under his Thumbs; then holding the *Gemelli* Muscles under the Leg with his eight Fingers, passes his Thumbs over the Crest of the *Tibia*, to see if the Bone is even.

The Leg being held in this Posture, both by the Servants and the Surgeon, without budging or giving Way, another Servant comes and applies a Piece of Linen Cloth about twelve Fingers breadth long, and four or five broad, having first dipt it in *Oxycrate*, and covered it

with

with a Defenſive of the *Whites of Eggs* and *Oil of Roſes*. This Piece of Cloth is cut at both ends almoſt two Inches in length.

If the Fracture flies to the inſide, 'tis applied from the outſide to the inſide, the Ends that are thus cut being laid one over another. Then the Surgeon takes a Fillet two Ells and a half long, and of the breadth of three Fingers; and if it be the left Leg, with either the *Tibia* or both the Bones caſt to the inſide, he places himſelf on the outſide, and holds the Ball of the Roller in his right Hand, reſting his Thumb upon the middle of it, while the end of the Roller is held by the left Hand, with the Thumb likewiſe reſting on the middle of it; this done, he unrolls the Roller as far as the breadth of ten Fingers, and pulling it over the Thumb and Wriſt, reſts the Ball againſt his left Hand, and does not ſet the Roller a going till this End is applied to the Part.

I have already told you, that all the Security of a Roller depends on the firſt Turns, and if theſe ſlack, all the reſt will prove the ſame.

The end of the firſt Roller being thus applied for a little way upon the ſolid Part of the Bone, if the Fracture runs all round, or to the middle of the Fracture, if it runs obliquely, we give three pretty tight rounds about the Fracture, taking care to make theſe three equally tight, according to *Hippocrates*'s Rules, to unroll the Roller as far as what will go half round the Part affected, and to hold the Roller in

in the left Hand, in a ſtreight Line, without moving. This done, the right Hand takes hold of it, and does not ſet a going till the left Hand has graſped the lower Part of the Leg; after which, the Surgeon continues to make the ſame turns, aſcending to the Ham, and forming ſmall Edgings or renverſed Turns, where there's occaſion.

The ſecond Under-Fillet muſt be as broad as the laſt, and three Ells long, and applied from the outſide to the inſide: With this you make two Convolutions upon the Rounds of the former, and then deſcend under the Sole of the Foot, leaving the Ancle Bones as open as you can. This done, you re-aſcend with it, with Edgings a little larger than thoſe of the firſt and renverſed turns, if there's occaſion. At laſt it terminates along with the firſt.

After this, you apply a tranſverſe Compreſs, made of a Piece of Linen about a quarter of an Ell long, and as broad as ſixteen Fingers. This Compreſs you're to fold lengthways, leaving about an Inch from the Edge uncovered; then you fold it again once or twice, and reduce it to the breadth of five Fingers, to be ſoaked in *Oxycrate*, and covered with a Defenſive or ſome other Liquor, if there's occaſion. The Plaits of the Compreſs muſt be applied below, as near the Ancles as you can, and the ends of the Compreſs ſhould lie upon another, not upon the Creſt of the Bone, but upon the outſide or the inſide of the Leg.

The

The longitudinal Compreſſes muſt be twelve Fingers breadth long, and two Inches broad: Of theſe you're to apply four, *viz.* two forwards, one on each ſide, at the diſtance of a Finger's breadth from the Creſt of the Bone, which ought to be left open; and two on the Sides, taking care to make 'em ſit tight.

This done, you come to apply the third Fillet quite contrary to the other two, that is, from the inſide to the outſide. You roll this upon the ſame Turns with the firſt, beginning with the ſingle Round, and ſo aſcending in Edgings with greater Intervals, 'till you come to terminate along with the others.

The fourth Fillet is applied firſt above, then it deſcends from the out to the inſide in greater Circuits than the third.

This done, you apply Paſtboards to the lateral Parts of the Leg, leaving the Ridge of the Shin uncovered for about a Fingers-breadth: Theſe Paſtboards are to be held on with three Strings about an Ell long and an Inch broad. The middle String muſt be firſt tied, for which you hold the end of it in your left Hand, on the outſide of the Leg, and with the right you hold the other end under the Leg, in order to make a circular Convolution about the firſt Turn. The ſame courſe is taken in tying the other two; and withal you muſt remember that all the three Knots muſt lie on the external lateral Parts.

Having

Having already ſhewn you how to make the Junks, I ſhall now only add, that the outſide Junk ſhould be two Inches longer than that for the inſide, by reaſon that the lower Part of the *Perone* is ſomewhat longer than the *Malleolus* of the *Tibia*; but at the ſame time both the Junks muſt extend their upper and lower Part beyond the Knees and Feet. I mean, that both the Junks muſt go equally beyond the Knees the breadth of three Fingers; but the inſide Junk ſhall reach beyond the Feet only one Inch, whereas the outſide one ought to reach three Inches beyond them.

Here you muſt call to mind what I ſaid relating to the making of Junks, namely, that the Chaff whereof they are made ought to be fortified with little Rods. Before you apply 'em, you muſt lay under 'em three ſmall Ribbons, at the diſtance of four or five Fingers breadth from one another, and guard the lateral Parts, from the Ham to the Ankle, with two good entire Compreſſes, or elſe ſeveral little ones; after which you are to lay over the Leg, from the Knee to the beginning of the Foot, another thick Compreſs of eight doubles. The Junks laid under the Leg muſt be tyed on with three Strings, beginning with the middle one, which ought to bind faſter than all the reſt; and all the Knots muſt be caſt on the outſide of the Leg.

I adviſe you to make uſe of a Sole as much as you can in all Fractures of the Thigh, the Leg,

Leg, and the *Rotula*. The Sole ſhould be of Paſtboard, if you can have it, or at a diſtance from great Towns, where that can't be had, of ſome old Sole of a Shoe.

If you are forced to make uſe of Wood for this Service, let it be very thin, and guarded with a good Linen Compreſs, to hinder its hurting the Sole of the Foot. At the end of the Sole you muſt put a Ribbon about three quarters long, to be tyed to the firſt upper String that tyes on the Junks.

This Ribbon is of great uſe, it keeps the Sole in good order, and ſerves as a Stay and Security to the Leg, for nothing hinders the Union of the Bones more than Motion. If all theſe Circumſtances be duly obſerved, the Leg will lie very ſoft and eaſie, and in ſuch a manner, that the Foot is ſomewhat higher than the Knee.

The firſt Day of the Dreſſing you muſt make a Rope to hang down from the top of the Bed, within reach of the Patient's Arm, and faſten to the End of it a Peg or Knob covered with Linen, that the Patient may not hurt himſelf when he goes to ſtool. At the ſame time, for the greater Security of the Leg, you muſt arch up the Bed-clothes with a Hoop, or ſome ſuch thing, for the Motion of the Clothes might hinder the Re-union of the Bones.

Here I refer the Reader to what I have already ſaid upon the *Fracture of the Thigh*, of the Signs whereby we know whether the Bandage

dage is too tight or too ſlack; and can't but caution my Reader once more to be very careful upon that Head.

The greateſt and moſt important Advice I can give a *young Surgeon*, is, to viſit his Patient frequently, becauſe the whole Dreſſing may ſlacken in a little time. On occaſion here's no Danger in untying the little Ribbons of the Junks, and opening theſe a little, in order to make a tighter Conſtriction of the three Strings of the Paſtboards, for this may be done without moving the Leg.

For the ſecond Dreſſing, two Servants muſt hold the Leg, one the upper Part, and t'other the lower, without pulling or drawing any manner of way, while the Surgeon neatly undoes the Rollers with one Hand, and with the other takes hold of the Leg very gently, and ſo takes off the whole Dreſſing.

But if he finds that the Leg is very ſtrait, and of the right ſhape, he ought not to touch it at all. If the Part is diſturbed with an Itching, let him dip a Rag in Water and Salt heated, and let it drop upon the Leg beyond the Fracture. If no Accident forbids, he may apply upon the Fracture the Plaiſter againſt the *Kupture*, perforated with little Holes in rows, to give way to the Penetration of the Wine heated, in which all the Rollers and Compreſſes are to be ſteeped. The reſt of the Dreſſing is the ſame with the firſt.

Eight

Eight or ten Days after, he is to dreſs it a third time, without any Alteration. After the 24th or 25th Day is paſt, he muſt take off the Dreſſings every three Days, and foment the Leg with the hot Wine in which the Compreſſes are dipt, and lay on the Plaiſter again, leaving off the Roller.

After that he muſt not bind the Part ſo hard; and for the laſt eight or ten Days he is to apply only two Rollers, continuing ſtill the Junks. About the fortieth Day he may take off all the Dreſſings, and clap the Leg into ſome deep Veſſel filled with Red Wine, boiled with aromatick Herbs. This Wine muſt be heated very hot in Winter, and moderately hot in Summer. The Leg being thus fomented two or three times a Day, the Patient muſt uſe a Stick for the firſt Days of his beginning to walk; for at firſt he does not dare to throw his Weight upon the broken Leg, and it ſeems to be ſhorter than the other, by reaſon that he does not dare to extend it to the full length. Some time after, you muſt make him quit his Stick, that ſo he may diſcard the Fear of being unable to walk without it. So much for the compleat and incompleat Fracture of the Leg.

Here I have taken no notice of the Rolls made for the Seat, which, after all, are very uſeful in a compleat Fracture of the Leg, or even a Fracture of the *Tibia*.

CHAP.

CHAP. XXXVII.

Of the Luxation of the Tibia *when its upper Part departs from the Thigh-bone; the Bandages requiſite on that occaſion.*

THE *Tibia* may be diſlocated from the Thigh-bone four Ways, *viz.* inwards, outwards, upwards and downwards. The Signs by which we diſtinguiſh theſe Luxations, appear in the figure or form of the Leg. If the *Condylus* flies inward, the Leg turns outward; if the Joint bears outward, the Leg turns inward; and when the two *Condylus's* deſcend under the Ham, the Heel approaches to the Breech. The upward Luxation is very rare, tho' ſtill poſſible.

CHAP. XXXVIII.

Of the Diſlocation of the Tibia *to the outſide.*

IF the Diſlocation is external, cauſe the Patient to ſit down on a Chair without Elbows, and order a Servant to embrace him, and hold him faſt; while you clap your right Hand upon the inſide of the Thigh, and your left Hand on the inſide of the Leg, and ſo with your right Knee puſh the Eminence of the Bone from the outſide to the inſide, 'till 'tis right ſet.

CHAP.

CHAP. XXXIX.

Of the Diſlocation of the Tibia *to the inſide.*

IF the Bone flies off to the inſide, the Surgeon places himſelf between the Patient's two Legs, and takes hold of the outſide of the Thigh and Leg, and pulling inwards with all his Force, puſhes the Eminence of the Bone from the inſide outwards with which of the Knees he can moſt conveniently apply.

CHAP. XL.

Of the poſterior Luxation of the Tibia.

IF the *Tibia* is diſlocated to the Back, or hinder Parts, let the Patient be ſet upon a Chair or a Bed, and held faſt by a Servant behind him, while another Servant takes a wooden Peg, covered with Linen, about twelve Fingers breadth long, and lays the middle exactly under the Ham, ſo that its two Ends may be pulled from below upwards by a Servant. The Surgeon places himſelf on one ſide of the Leg, and after applying a Piece of Liſt, or ſome other Fillet under the Knee, pulls with his left Hand the two Ends of the Fillet upwards, and with his other Hand bends the Leg, making the Heel approach to the Buttocks.

CHAP.

CHAP. XLI.

Of the Luxation of the Tibia *forward.*

IF the *Tibia* is diſlocated towards the fore-part, you muſt lay the Patient upon his Back on a Plank, with a Quilt or ſome other Covering under him, and a Servant behind him that holds him faſt. Then comes another Servant, who with his two Hands pulls the lower Part of the Thigh-bone upwards; while a third Servant draws the Leg downwards, and the Surgeon with his Knee puſhes the Eminence of the Bone from above downwards, ſo as to make it re-enter its Cavity.

The Bandage is made with a Roller with one or two Heads, and a Compreſs cut hollow, ſoaked in *Oxycrate*, and covered with a Defenſive of the *Whites of Eggs*, and *Oil of Roſes*.

If the *Tibia* is diſlocated to the inſide, apply the end of the Roller from the outſide inwards, and make two circular Rounds above the *Rotula*; then deſcend under the Ham, and make two circular *Convolutions* under the *Rotula*: This done, croſs upon the internal lateral Part of the Ham, moving from the outſide inwards; then re-aſcend over the firſt Turns from the inſide outwards, and from the outſide inwards; after that deſcend below the Ham from the inſide outward, continuing your Edging from the upper Part down-

downwards, and *è contra*. At laſt compleat the Bandage in a circular Round or two above the *Rotula*. This Fillet or Roller ſhould be three Ells long, and three Fingers broad.

As for the Anterior or Poſterior Luxation, you muſt make the Bandage with a Roller done up to two Heads. In the Anterior you begin the Bandage upon the upper and fore-part of the *Tibia*, making two circular Rounds about the lower Part of the Thigh Bone, juſt by the *Rotula*; then deſcend under the Ham, croſſing both on the inſide and the outſide.

Here you muſt call to mind what I remarked before, that in making the *Chiaſtes* (Croſſes) upon the lateral Parts of the Knee, one Head muſt croſs and paſs firſt, whether on the inſide or outſide. For Example, in holding the two Balls or Heads with your two Hands, you muſt pull one Head from the outſide towards the inſide, and croſs under the Ham; after which you muſt pull the other Head from the inſide outwards, and croſs likewiſe on the outſide; then paſs over the other Head, continuing your *Edgings*, that is, ſo as to make the lower Ball edge from below upwards, and the upper Ball edge from above downwards.

You muſt take care to make a very ſlight Stricture in covering the *Rotula*, to make all the Croſſes on the two Sides of the Ham, and to form the Edgings on the fore-part both of the Thigh Bone and the *Tibia*.

CHAP. XLII.

Of the Dislocation of the Joynt of the Astragalus *with the* Tibia.

AFTER dispatching the upper Dislocations of the *Tibia*, we come next to its Luxation at the lower end.

The *Astragalus* is dislocated to the inside by an incompleat Luxation; and then it moves half out of its Cavity, and the internal *Malleolus* possesses the upper Cavity of the *Astragalus*; the Heel turns very much outwards, and the Sole of the Foot turns the same Way.

Besides these Circumstances, there's a great Rising in the internal lateral Part of the Foot, which is the *Astragalus*.

If the *Astragalus* is dislocated to the inside, there's an Eminence in like manner on the outside, by reason that the Process of the *Perone* retires backwards.

CHAP. XLIII.

Of the Compleat Dislocation of the Astragalus.

A Compleat Luxation of the *Astragalus* can't come to pass without great Violence. For my own share, I never saw any of this Nature,

Nature, but incompleat Diſlocations I have met with in my Practice.

If the Diſlocation is compleat, the *Aſtragalus* muſt depart altogether from the Cavity of the *Tibia*, and the internal *Malleolus* muſt ſtand in the room of the Head of the *Perone*, and the Proceſs of the *Perone* muſt advance to the outſide, under the Sole of the Foot. Indeed, I doubt much if any ſuch Luxation can happen. If it does, of neceſſity the *Tibia* muſt move to the diſtance of four Fingers breadth from its Cavity, and the Ligaments that knit the *Perone* to the *Aſtragalus* muſt be ſtrangely relaxated; nay, I doubt much if ſome of the Ligaments muſt not be quite broken.

For a due Reduction of all theſe Diſlocations, let the Patient ſit down upon a Chair without Elbows, or upon the ſide of a Bed, if he can't ſit in the Chair. Let a Servant behind him hold him faſt by the middle of the Body, while two other Servants pull the Leg upwards with all their Force, the one holding it by the upper with his two Hands, and the other by the lower Part, near the Ancles. Then, if the Diſlocation throws to the inſide, the Surgeon muſt take hold of the Foot with his two Hands, and pull the Sole of the Foot from the inſide outwards: If the Diſlocation bend outwards, he makes the Servants make the ſame Extenſion, and the Surgeon puſhes the Foot to the inſide.

The Bandage is made of a Roller three Ells long, and two Inches broad, with a Compreſs of the breadth of two Fingers, and ſixteen Fingers breadth long, dipped in *Oxycrate* hot, and ſmeared with a Defenſive. This Compreſs is applied all round upon the juncture of the *Malleoli*. If the Diſlocation is internal, apply the end of the Roller on the outſide, and make two Turns; then run it from the inſide outwards upon the fore-part of the Foot, and upon the Articulations of the *Malleoli* under the Sole of the Foot; after that, from the inſide outwards, croſs above the Foot, and ſo run round the Heel from the inſide outwards, under the Sole of the Foot.

This done, you muſt croſs from the outſide to the inſide; then paſs inwards round the Heel, and under the Sole of the Foot, from the inſide outwards, and ſo over the Foot, forming a *Demi-Lozenge*. After theſe Turns, you deſcend lower under the Sole of the Foot, over-againſt the other *Convolution* of the Roller, in order to form a *Rhombus* upon the middle of the Foot. Then making two Turns with a little Deſcent, you form yet another *Rhombus*. This is what we commonly call the *Sandals*. Forty Days are required for recovering the Strength and Uſe of this Articulation.

Thus I have gone through the Signs of Fractures and Luxations, and the way to reduce them by the Means of Bandages, ſo it remains

remains only to ſhew what a complicated Fracture is; for which end I ſhall treat particularly of the Fracture of the Leg, attended with a Wound, a Subject that *Hippocrates* is very large upon in his third Commentary of Fractures.

CHAP. XLIV.

Of the Complicated Fracture of the Leg.

Hippocrates is of Opinion, that if a Fracture is accompanied with a Wound that is not very conſiderable, if no Scales or Splinters are ſeparated from the Bone, and if the Extenſion and Conformation are duly performed, the Fracture ought to be dreſs'd in the ſame manner as if no Wound had been; and a circular Bandage, ſuch as we uſe for compleat Fractures, will ſerve in the Caſe of ſuch a complicated Fracture.

This ſmall Wound ought to be dreſſed as little as poſſibly we can, becauſe the Suppuration muſt direct us whether to dreſs or to leave the Part in Repoſe, for as much as the whole Intention of the Surgeon ought to conſiſt in keeping the Bones in the Poſture to which they are reduced.

In former Times ſome would not uſe a Bandage for the Fracture till the Wound was conſolidated, but *Hippocrates* abſolutely diſapproves thoſe Sentiments, eſpecially where two Bones are fractured with a Wound.

The ſame is the Opinion of *Galen*, who ſays, that if we neglect a compleat Fracture in the beginning, and apply all our Care to the Fleſh, we thereby occaſion many Diſorders, ſuch as the Contraction of the Member, or a naughty deformed *Callus*. To this purpoſe is the following Inſtance of a Complicated Fracture that fell into my Hands ſome Years ago.

A Practical Obſervation.

A Man aged Sixty-eight Years had a great Fracture in his right Leg, which was broken and bruiſed into ſeveral Splinters, and the Fleſh was torn ſo as to leave a Wound three Fingers over, above the inner Ancle. This Fracture was cauſed by a Cart-Wheel that threw him down upon his Face.

Now 'tis to be obſerved, that the Street was very ſteep, which was the cauſe of all the Miſchief; for after the Wheel had run over the Man's Leg, the Carman not being able to ſtop the Cart by reaſon of the great Deſcent of the Street, the Wheel put back, and run over the Man's Leg a ſecond Time. Upon which the Carman ſeeing what had happened, had a mind to get off as ſoon as he could, and ſo

ſo drove his Cart over his Leg a third time.

The wounded Man being brought immediately to me, I preſently ſaw a great Wound in the lower Part of his right Leg, with a prodigious *Hemorrhage*; then taking the Leg in my two Hands, and bending to the inſide and the outſide, I perceived that it bowed on all Sides, and had no other ſtay but the Fleſh.

I mention this Inſtance as a proper Example for young Students, becauſe 'twas the greateſt Hurt that ever happened to a Man of that Age; and during the eighteen Months that I dreſſed it, before I could bring it to a perfect Cure, there was a neceſſity of all the Induſtry, Diligence and Caution that Art and Practice can enjoin.

For the purpoſe, you muſt know, that before the Fracture happened this Man had an Ulcer with a *Caries* in the ſame Leg, above the inner Ancle, where the Bone was broken, and that he had bore this Ulcer for forty Years.

Firſt of all I ſtopped the Blood with Lint and Aſtringent Powders, two good tranſverſe Compreſſes, and two longitudinal Compreſſes; and after making five or ſix Turns of a Roller upon the Fracture, carrying it up with Edgings, I put two Props under the lateral Parts of his Leg, in the form of Junks. Thus I laid him on a Ladder, with a Quilt under him, and a Covering over him, and ſo ordered him to be carried Home, for he had deſired to be conveyed to his own Home; ſo that this

first Dressing was not so orderly as I would otherwise have made it.

When he got Home, he was carried up three Pair of Stairs, which did a great deal of Injury to his Leg; and after he was laid upon his Bed, he was dressed more exactly about Four a-Clock in the Afternoon; and the bleeding was so violent, that I was forced to dress him about the Midnight of that Day.

Mr. *Presidy* being likewise called, he and I tended him jointly, and found one half of the Leg, and all the upper Part of the Foot gangrened. Some were for Amputation; but by my vigilant Care and Diligence I put a stop to the Gangrene.

You must remark, that during the Dressing of this Fracture there happened great Disorders; for the Muscles which bend the Foot were quite putrified, so that we were obliged to make great Incisions: And about ten or twelve Days after, the *Tibia*, upon which the Fracture and *Caries* was about two Fingers breadth from the *Malleolus*, appeared bare for the breadth of two Fingers, and as black as Ink.

Thereupon I tried all the Remedies that are proper to procure an Exfoliation; such as the *Oyl of Guaiacum*, *Oyl of Camphyr*, &c. At the same time I was under an Obligation of saving and defending the great Tendon that extends the Heel, for that lay exposed for the breadth of two Fingers. In fine, I made

Injections

Injections twice a Day for four Months together; a Part of the *Tibia*, as long as the breadth of three Fingers, exfoliated; and then the Leg was pierced ſo, that you might have ſeen thro' it; further, the *Perone*, which bore all the weight and ſhock of the Wheel, that paſſed and repaſs'd over it ſeveral times, was not only broken in ſeveral Pieces, but was likewiſe much bruiſed, which occaſioned conſtant Abſceſſes and Ulcers.

Six Months after, it appeared bare for the length of three Fingers breadth, and finding it carious, I applied an actual Cautery to it ſeveral times. But after that, there enſued another grievous Diſorder of a gangrened Ulcer in the Heel, as long as the breadth of three Fingers. This happened about the eighth Month, and laſted two full Months; and notwithſtanding I was obliged to lift the Leg twice a Day to dreſs this Ulcer, a firm *Callus* grew upon it.

Which ſhews, that all the Rules of Art, and all that Practice could invent, were put in execution; for I always kept his Leg in due Figure, and in a ſtrait Line, with Junks and proper Bandages. He had a Sole under the Sole of his Foot for full eleven Months, and indeed all theſe grievous Diſorders were not cured without great Labour and Pains; for during the firſt ſix Months, while the great Corruption and Putrefaction laſted, I ſpent every Day five or ſix Hours (including

Morning and Night) in preparing my Apparel, and dreſſing my Patient.

And, what is yet to be obſerved in the Concluſion of this Relation, he had nothing applied to him but the Junks and the Bandages with eighteen Heads, with longitudinal Compreſſes; for half the *Gemelli* Muſcles was putrified by the Gangrene; and there was no firm or hard thing that could ſerve me during the whole time of the Cure.

I reckon this great complicated Fracture may ſerve for a Model and general Rule, for all that I can ſay upon this Head: But, what was the happieſt Circumſtance of all, the Patient recovered perfectly in the ſpace of eighteen Months, and ſix Months after walked without a Cane at the Age of Seventy or Seventy-two Years. Nay, he lived nine or ten Years after.

CHAP. XLV.

Of the Bandage of Extirpation.

THERE are three Ways of ſtopping Blood, namely, the Ligature of the Veſſels, the Vitriol Button, and the Turnſtile. The two firſt I wave, as retaining to Chirurgical Operations; ſo it remains only

to

to explain the third, which is a late Invention, and a very proper Means for ſtopping Blood.

The Way of uſing it is this. Apply a Compreſs that goes round, above the *Rotula*. Upon this Compreſs you muſt put a Ribbon called *Tirebotte*, which is half an Ell long, and an Inch broad. This Ribbon you make faſt at the two Ends, leaving ſpace for running thro' it a little Stick, about as big as one's Finger, and half a Foot long; after which you make as many Turns over the Compreſs as you have occaſion for.

But before I ſhew you the Application of the Bandage, I ſhall quote to you the Precepts of *Hippocrates*. He does not content himſelf in ſhewing the Situation and Poſture every one of us ought to obſerve in all our Operations, but likewiſe would have us to conſider the Poſture of the Patient, eſpecially in the Caſe now before us, where Life is in danger. Accordingly he tells you, the Patient ought to be upon his Bed-ſide, if his Strength will permit.

The Party that is to have the Bandage applied to him, muſt be held by ſuch Servants as know how to do in ſuch an Operation. Care muſt be taken to keep the Part as high as is poſſible, by reaſon of the Bleeding. You muſt apply no Rollers or Fillets till all the Pledgits and Compreſſes are laid on, which ought then to be held on by the Hands of

ſome of the Aſſiſtants, leſt any ſhould drop off in tying up the Part.

Hippocrates would have the Rollers and Compreſſes to be dipped in *Oxycrate* in the beginning, and towards the end in Wine. He adds, that when the Rollers are thus ſoaked, they ply better to the Part, and the Bandage is better made, beſides, that it helps to mitigate the Pain, moderate the Inflammation, and hinder the Flux of Humours. The ſame Divine Author orders the Surgeon to perform the Operation with both his Hands, that ſo it may be performed with more Sureneſs, Neatneſs and Diligence.

Galen would have the Member ſeated a little upon the Riſe, and in a ſmooth, even and painleſs Poſture, eſpecially when a *Hemorrhage* is feared. After the Dreſſings are laid on, you muſt not take them off for two or three Days, unleſs ſome particular Symptom forces you to it. You muſt take care that the Bands or Fillets are neither too dry nor too apt to adhere; for which end you ought to have ſome warm Liquor to ſoften and moiſten the Fillets and Compreſſes before you take them off, in order to avoid a *Hemorrhage*.

Such are the Injunctions of *Hippocrates* and *Galen*, from which we may form a general Rule.

I don't

I don't pretend to ſpend Time in this place in ſhewing the Application of the ſeveral ſorts of Bandages recommended by Authors, and which are now ſcarcely in Uſe. In ſhort, I would have the Application made in the following manner.

CHAP. XLVI.

Of the Application of the Medicines.

AFTER ſtopping the Blood, either by the Ligature of the Veſſels, or the Vitriol-Button, or the Turn-ſtile, let the Patient's Thigh be held a little high by a Servant, while another holds the Stump as high as he can; then the Surgeon takes the Pledgits, covered with aſtringent Powders, ſuch as fine *Bole*, *Incenſe*, *Maſtich*, *Aloe*, calcined *Allum*, *Colophonia*, the *Hair of an Hare* cut very ſmall, *&c.*

'Tis always moſt convenient for the Surgeon to lay on all the Dreſſings with his own Hands, and to have skilful Servants about him, one of whom is to hold the Baſin with the Pledgits, covered with aſtringent Powders. The Surgeon takes theſe Pledgits in his right Hand, and applies 'em, and with his left Hand keeps 'em cloſe up to the Veſſels; if his left Hand is not ſtrong enough for that

End, he muſt employ his right Hand in the ſame Service.

The aſtringent Powders ſhould be diluted in Wine in which Roſes, Pomegranate-flowers, and Sumach have been boiled; or if theſe Ingredients are not at hand, they ſhould be diluted in Wine alone. After this, the Surgeon applies a Hog's Bladder well dried, and cut in the form of a *Malta* Croſs: This done, he takes off the *Tourniquet*, which ought to have ſlackened after the Amputation, in order to throw out the Blood that's intercepted by the Ligature; and lays on a Plaiſter cut in the ſame faſhion with the Bladder.

If you would cut the Plaiſter right, you muſt take a Piece of Linen that's two thirds of an Ell long, and half an Ell broad; fold it ſideways twice ſucceſſively, then fold it a third time in the Angle of the cloſe Plaits, and at laſt cut through the back of theſe Plaits about three Fingers-breadth under the Corner. The Compreſs, which muſt be of four Doubles, ſhould be cut in the ſame manner with the Plaiſter, and applied next by the Surgeon. In the mean time, the whole Dreſſing muſt be kept upon the Part, as tight as two Hands can make it.

After that, the Surgeon lays on four longitudinal Compreſſes half an Ell long, and of the breadth of three Fingers, placing them croſs ways over one another. Then he makes

the Edging with a Roller with one Head, about five Ells long, and of the breadth of four Fingers. He applies the end of the Roller above the *Rotula*, and then makes two circular Rounds: Then he runs it from before to the hinder Parts, along the middle of the Wound, and paſſes under the Ham, where he makes a renverſed Turn. After that, he deſcends upon the Wound, and then re-aſcending above the *Rotula*, where he makes a renverſed Turn, he deſcends again upon the Wound. After this, he re-aſcends by the Ham, and makes another Renverſe; then he repaſſes over the Wound, and continues in the ſame courſe both upwards and downwards, riſing ſtill higher and higher, till he comes at the Groin, that all the Apparel and Dreſſings may be covered. This is the true Practice of thoſe who are moſt verſed in this Affair.

But as for the young Surgeons, that have not much Experience, I would adviſe them to make uſe of two Rollers, one with one Head, and another with two. They muſt begin with applying the Roller with one Head above the *Rotula*, where they make two circular Rounds; then they paſs by the middle of the Wound, and circulate round with ſmall Edgings, aſcending all along the Thigh, and covering the Dreſſings.

Then they muſt make the *Capeline*, with the Roller with two Heads, which they hold with

with both their Hands, and apply it to the posterior Part of the Member that was cut, upon which they make a circular Round, and with one of the Heads they make a renverſed Turn, paſſing from behind forwards over the middle of the Wound; and with the other Head they circulate above the Head that made the Renverſe round the lower Part of the Thigh. This done, they continue to make a renverſed Turn from before to the hinder Parts, covering the Wound, and with the other Head they make a Renverſe from behind forwards. Thus they continue to make renverſed and circular Turns both above and below, and cover the whole Wound by Edgings, as in the *Capeline* of the Head and the *Clavicula*.

Here you are to obſerve, that if you make an Amputation of a Leg at Night, you muſt hold the Stump for four or five Hours, and if you apprehend an *Hemorrhage*, it behoves you to hold it all Night long; that is, unleſs you have caſt Ligatures upon the Veſſels; for if you have, there's no occaſion to fear a Bleeding.

CHAP.

CHAP. XLVII.

Of the Diſlocation of the Perone, *and its Bandage.*

TO compleat this Treatiſe, it remains to ſpeak of the inferior Extremity of the Foot; but before I enter upon that Subject, 'twill be proper to inſert a Word or two of the Diſlocation of the *Perone*, which is articulated both above and below with the *Tibia*. The lower Neck of the *Perone* is received in the external lateral Cavity of the *Tibia*, and at the upper End it receives a ſmall Eminence of the *Tibia*. At the Bone it has a double Articulation, one with the *Tibia*, and the other with the *Aſtragalus*; and the only Diſlocations 'tis capable of, either above or below, are the *Anterior* and *Poſterior*. The Sign of its being diſlocated forwards, is an Eminence upon the lower and fore-part of the *Tibia*, towards the inner Ankle. When the Diſlocation flies behind, there's an Eminence near the Heel. The Diſlocations at the upper End are very unfrequent.

If 'tis diſlocated at the lower End, we order one Servant to take the Foot in his two Hands, and reſt the Patient's Heel upon the Ground, or ſome ſolid thing, and another Servant to clap a ſingle Nooſe upon the upper

per and external lateral Part of the *Perone*, at the Place of its Articulation with the *Tibia*. Then we take a Piece of Liſt, and fold it in two, and caſt a running Knot upon it, to be applied to the upper and external Part of the Leg upon the *Perone*. After that, the two Heads of the Nooſe muſt be pulled with a force, and the Surgeon puſhes the Bone with his two Hands outwards, if the Luxation was inward; and inward, if the Diſlocation was external. If the *Perone* is diſlocated at the upper End, it muſt be puſhed on each Side, by clapping a Nooſe upon the lower Part.

The Bandages muſt be *Chiaſte's*, both above and below. When the Reduction is made, the Patient muſt keep up forty Days.

CHAP. XLVIII.

Of the Diſlocation of the Foot.

THE Heel may be diſlocated in the internal lateral Part, but very rarely in the external, by reaſon that the Articulation of the *Perone* with the *Aſtragalus* hinders it from ſtarting to the outſide.

In order to ſet it, place the Patient upon a low Chair, and order a Servant to clap a Nooſe

Nooſe under the Sole of his Foot, pretty near the Heel, and then croſs upon the fore part, and pull upwards the two Heads, one in each Hand; then let the Surgeon puſh the Bone from the inſide outwards. The Bandage is the Sandal, deſcribed above.

The Bones of the *Tarſus*, the *Metatarſus*, and the Toes, are capable of being fractured; in which Caſe they muſt be put to rights like the Bones of the Hand, by cauſing a Servant to hold the Patient behind, ſo as to make him ſtand upright, and reſt the Sole of his Foot upon the Floor or a Board; after which, the Surgeon puſhes the Bone from above downwards, or from the Side to which they are ſtarted. This done, he covers the Foot with a Linen Cloth, and a Compreſs of four Doubles, dipped in *Oxycrate*, and beſmeared over with a Defenſive. The Bandage is the Sandal.

CHAP.

CHAP. XLIX.

Of the Diſlocation of the Bones of the Tarſus, *the* Metatarſus, *and the Toes.*

THE *Tarſus*, *Metatarſus*, and the Toes, may be diſlocated ſeveral Ways, as well as the Bones of the Hand. The Bones of the *Tarſus* may be diſlocated to the inſide and the outſide, but not ſideways, by reaſon that they reſt one upon another, and have a Joint-Stay. The three Bones of the *Metatarſus* ſuffer Luxation only to the outſide or the inſide. The Bone that ſuſtains the great Toe may be diſlocated forwards, backwards and ſideways; and the Suſtainer of the little Toe is expoſed to the ſame hazard. The other Bones of the Toes may be diſlocated every way, whether forwards, backwards, inwards or outwards.

In order to reduce theſe Bones, let the Patient be held upright in a Man's Arms, ſo that the Sole of the Foot may reſt firm upon the Floor, and let the Surgeon puſh the Eminence of the Bone from that Side on which they lie in their preternatural State. If the Bones of the *Tarſus* are ſlipped out to the inſide, you muſt take a Rolling-pin, or a Piece of round Wood, and make the Patient reſt the Sole of his

his Foot upon it as firmly as ever he can, and move his Foot ſeveral times on the reſting Point.

This ſort of Accidents commonly perplex us more than Fractures, upon the account that we can't limit the Time of the Cure. Upon this occaſion we uſe *Roſes*, *Pomegranate-flowers*, and *Linſeed*, boiled with harſh Wine. After the Decoction is taken off the Fire, we add to it *Oyl of Roſes*, and with the Liquor of this Decoction, very hot, do we rub the Patient's Foot for a conſiderable ſpace of Time. We likewiſe cover the Compreſſes with the Subſtance of theſe Ingredients thus boiled, and ſo apply it very hot to the Foot. The Bandage is the Sandal.

I ſhall now conclude this Treatiſe with the Hiſtory of a *grievous Diſorder in the Foot*, which may afford Inſtruction to *Young Surgeons*, how to employ their Judgment in managing hard and ſolid Parts.

Some Reflections upon a grievous Diſorder in the Foot.

SOME Years ago I was called to a young Man in the Country that had an Illneſs in his Foot. All the Toes of the Foot were livid and cold, and he could aſſign no Cauſe for it, unleſs it were his having leaped and jumped

jumped too briskly at ſome Play uſual in their Country, or elſe his having held his Feet in Water.

In the beginning I dreſſed him three times a Day, with ſuch Remedies as are proper to reſiſt Corruption, ſuch as *Aloes* and *Myrrh* diſſolved in *Ægyptiacum* and the beſt *Spirit of Wine*. Notwithſtanding all my Precautions, and a ſtrict Regimen, the Corruption and Gangrene got to the *Metatarſus* on both Sides of the Foot. Upon this I propoſed to Mr. *Bienaiſe*, to have the Foot cut with a Wedge before the Gangrene reached the *Metatarſus*, upon the Plea, that 'twas better to have half a Foot and an Heel, than a wooden Leg. He replied, That it behoved us to cut the Toes one after another. But the Gangrene advancing apace, I cut off the gangrened Part with a Knife made of an old Sword, the Edge of which I had cauſed to be ſomewhat thick, that it might be capable to reſiſt, and not turn and blunt in cutting the upper Extremity of the Bones of the *Metatarſus*; for I conſidered, they are thicker there than in any other Part. I had likewiſe cauſed a Wedge and Mallet to be made on purpoſe.

After cauſing the Patient to advance to the Side of the Foot of the Bed, I ordered a Servant to hold him behind, and two other Perſons to hold him, one on each Side.

Having

Having fixed my Block upon a firm Stool, I made him lay his Foot upon it, and preſs down upon it with all his Strength: Then I took the Knife in my left Hand, and applied it to the upper Part of the *Tarſus*, half the breadth of a Finger above the Gangrene. Holding it in this Poſture, I brought down the Mallet in my right Hand with all my force upon the back of the Knife, which ran through full half an Inch into the Block.

In that very inſtant I cauterized the Bones with a little ſquare Cautery, of the breadth of two Fingers, and three Fingers breadth in length. I had two of them, the which were made red-hot one after another with all the expedition poſſible: And then indeed he felt a very violent Pain, and cried out prodigiouſly.

Here you muſt obſerve, that we had not one drop of Blood in this Operation, notwithſtanding I cut upon the Quick.

The firſt thing I applied was a grand Anodyne Remedy, conſiſting of nothing elſe but the Yolks of Eggs, which ought always to be applied upon great Pains occaſioned by Inciſion. I covered three or four Pledgits with this Anodyne, as well as two Compreſſes dipt in Wine very hot; this done, I wrapt up the reſt of the Foot, and winded it with a ſort of a *Capelline*.

At

At the End of fifteen Days I applied the actual Cautery again, in order to produce a good and firm Cicatrix; and two Months after the Incision he was perfectly well, and walked without Lameness. I keep his Foot still by me.

FINIS.